

Capital investments in manufacturing activities worldwide

January 2016- May 2018



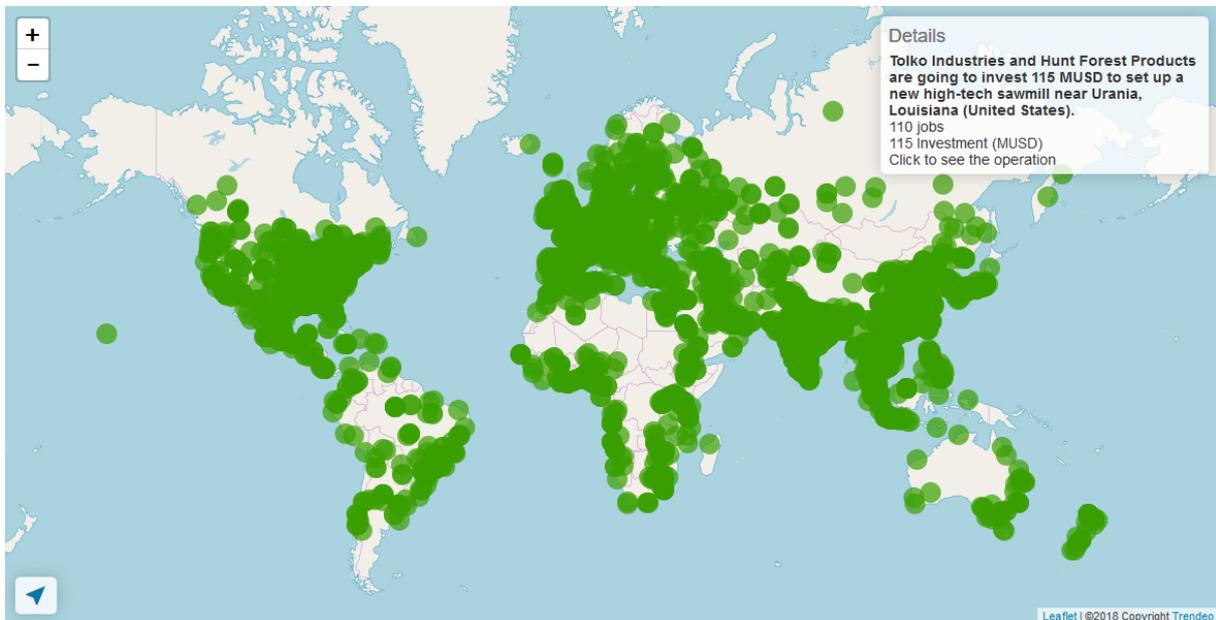
Manufacturing

January 2016 - May 2018

5 557 projects announced

1 652 billion dollars (capex)

1 698 090 jobs



The Industries & Strategies database, created and distributed by Trendeo, tracks, since 2016, every industrial investment (manufacturing, energy, logistics, R&D) announced worldwide (over 30 MUSD or 50 jobs). Each information is classified by product, sector, company, country, even a qualitative score (factories of the future score). Since January 2016, 9 127 investments have been tracked, among them 5 557 for manufacturing projects (61%). As the database is updated weekly, our users benefit from a more detailed information, including cancelled investments, factories of the future score details, capacity...

In the database, each information is described precisely across 30 quantitative and qualitative fields. The tables below synthesize the available data alongside different criteria.

Manufacturing among other activities

Each project in our Industries & Strategies database is classified by sector but also alongside the type of activities performed. We have defined nine types of activities, listed below. The table shows that **manufacturing makes almost 61% of projects, almost 80% of jobs created and 43% of amounts invested**. Manufacturing is only the third sector for the average capital expenditure per project, after *mining* and *power generation projects*.

Production type	Projects	%	Jobs	%	M\$	%	M\$/project
Manufacturing	5 557	60,9%	1 698 090	79,4%	1 651 685	43,4%	297
Power generation and/or distribution	1 434	15,7%	55 343	2,6%	1 000 380	26,3%	698
Mining and quarrying	452	5,0%	68 978	3,2%	925 451	24,3%	2 047
Logistic platform	707	7,7%	158 208	7,4%	130 493	3,4%	185
R&D	428	4,7%	135 111	6,3%	37 588	1,0%	88
Data center	192	2,1%	8 579	0,4%	27 853	0,7%	145
Water treatment plant	166	1,8%	886	0,0%	15 821	0,4%	95
Waste treatment plant	123	1,3%	2 611	0,1%	7 938	0,2%	65
Agriculture, forestry and fishing	68	0,7%	10 009	0,5%	4 782	0,1%	70
Sum	9 127	100%	2 137 815	100%	3 801 991	100%	417

Number of projects, jobs and investment, by type of activities, 2016-2018. Last column: average amount invested, by project.

Geographical repartition

China comes first in terms of capital expenditure, with 27% of global amounts. India and the United States taken together are just slightly over China. South Korea comes in fourth position, with a relatively low number of projects – with a very high average capex, due to the electronics sector. Germany is the first European Union country, in 17th position.

Rank	Country	Projects	%	Jobs	%	M\$	%	M\$/project
1	China	471	8,5%	151 250	8,9%	450 229	27,3%	956
2	India	1 362	24,5%	702 414	41,4%	288 044	17,4%	211
3	United States	1 036	18,6%	195 255	11,5%	217 494	13,2%	210
4	South Korea	47	0,8%	520	0,0%	66 541	4,0%	1 416
5	Saudi Arabia	35	0,6%	15 374	0,9%	65 240	3,9%	1 864
6	Russia	128	2,3%	18 559	1,1%	59 180	3,6%	462
7	Vietnam	86	1,5%	67 510	4,0%	43 096	2,6%	501
8	Malaysia	63	1,1%	32 147	1,9%	38 278	2,3%	608
9	Iran	50	0,9%	10 600	0,6%	32 465	2,0%	649
10	Egypt	35	0,6%	6 850	0,4%	30 593	1,9%	874
11	Taiwan	21	0,4%	7 000	0,4%	29 373	1,8%	1 399
12	Mexico	174	3,1%	70 667	4,2%	27 284	1,7%	157
13	Nigeria	33	0,6%	22 330	1,3%	21 259	1,3%	644
14	Indonesia	56	1,0%	12 890	0,8%	20 314	1,2%	363
15	Brazil	77	1,4%	12 288	0,7%	16 216	1,0%	211
16	Algeria	36	0,6%	26 930	1,6%	14 572	0,9%	405
17	Germany	138	2,5%	15 660	0,9%	13 986	0,8%	101
18	Canada	92	1,7%	8 550	0,5%	13 375	0,8%	145
19	Japan	62	1,1%	591	0,0%	12 154	0,7%	196
20	Thailand	64	1,2%	18 960	1,1%	8 016	0,5%	125
21	Sweden	33	0,6%	358	0,0%	7 329	0,4%	222
22	Spain	34	0,6%	3 769	0,2%	7 286	0,4%	214
23	Philippines	53	1,0%	15 824	0,9%	7 100	0,4%	134
24	United Kingdom	99	1,8%	13 922	0,8%	6 884	0,4%	70
25	Kazakhstan	15	0,3%	3 143	0,2%	6 531	0,4%	435
26	Bahrain	8	0,1%	750	0,0%	6 486	0,4%	811
27	Ethiopia	19	0,3%	36 762	2,2%	6 271	0,4%	330
28	France	115	2,1%	11 202	0,7%	6 021	0,4%	52
29	Hungary	38	0,7%	9 938	0,6%	5 935	0,4%	156
30	United Arab Emirates	41	0,7%	2 050	0,1%	5 765	0,3%	141
Top 30 countries		4 521	81,4%	1 494 063	88,0%	1 533 317	92,8%	339
106 other countries		1 036	18,6%	204 027	12,0%	118 368	7,2%	114
Sum		5 557	100%	1 698 090	100%	1 651 685	100%	297

Manufacturing investments by country, 2016-2018, tracked by Trendeo, by number of projects, jobs created, and amounts invested. Last column: average investment per project.

Regions

Among the 30 top regions (out of 952 regions in which manufacturing investments have been tracked), five countries are present with several regions: China (12 regions), India (7 regions), and the United States, South Korea and Saudi Arabia with two regions each. The European Union has no region within the top 30 world manufacturing regions.

Rank	Region	Projects	%	M\$	%	M\$/project
1	Maharashtra (India)	185	3,3%	77 974	4,7%	421
2	Jiangsu (China)	98	1,8%	60 193	3,6%	614
3	Guangdong (China)	42	0,8%	56 778	3,4%	1 352
4	Odisha (India)	101	1,8%	46 015	2,8%	456
5	Gujarat (India)	222	4,0%	44 943	2,7%	202
6	Gyeonggi-do (South Korea)	9	0,2%	41 843	2,5%	4 649
7	Zhejiang (China)	45	0,8%	39 798	2,4%	884
8	Hubei (China)	20	0,4%	39 079	2,4%	1 954
9	Sichuan (China)	17	0,3%	35 210	2,1%	2 071
10	Louisiana (United States)	35	0,6%	35 210	2,1%	1 006
11	Texas (United States)	97	1,7%	33 676	2,0%	347
12	Fujian (China)	14	0,3%	32 395	2,0%	2 314
13	Liaoning (China)	21	0,4%	31 541	1,9%	1 502
14	Eastern Province (Saudi Arabia)	12	0,2%	31 295	1,9%	2 608
15	Shanghai (China)	28	0,5%	28 408	1,7%	1 015
16	Johor (Malaysia)	7	0,1%	27 480	1,7%	3 926
17	Primorskiy (Russia)	7	0,1%	26 500	1,6%	3 786
18	Andhra Pradesh (India)	141	2,5%	24 345	1,5%	173
19	Chongqing (China)	17	0,3%	22 928	1,4%	1 349
20	Hebei (China)	17	0,3%	21 230	1,3%	1 249
21	Al Madinah al Munawwarah (Saudi Arabia)	5	0,1%	20 090	1,2%	4 018
22	Anhui (China)	19	0,3%	19 376	1,2%	1 020
23	Shaanxi (China)	8	0,1%	18 771	1,1%	2 346
24	Taiwan (Taiwan)	17	0,3%	18 044	1,1%	1 061
25	Suez (Egypt)	7	0,1%	17 009	1,0%	2 430
26	Lagos (Nigeria)	7	0,1%	14 705	0,9%	2 101
27	Karnataka (India)	114	2,1%	13 790	0,8%	121
28	Chungcheongbuk-do (South Korea)	8	0,1%	13 201	0,8%	1 650
29	Tamil Nadu (India)	104	1,9%	13 071	0,8%	126
30	Rajasthan (India)	52	0,9%	11 519	0,7%	222
Top 30 regions		1 476	26,6%	916 417	55,5%	621
922 other regions		4 081	73%	735 268	45%	180
Sum		5 557	100%	1 651 685	100%	297

Manufacturing investments by region, 2016-2018, tracked by Trendeo, by number of projects, jobs created and amounts invested. Last column: average investment per project.

Foreign Direct Investment and manufacturing

Almost half of investment projects (46,5%) come from foreign direct investment (FDI). FDI share is lower for capital expenditure (36,5%): FDI projects are 34% less capitalistic than domestic projects. Spain and Mexico have the highest level of dependency on FDI, respectively in amounts invested and number of projects, while Taiwan and Japan have the lowest levels for those same criteria.

Rank	Country	M\$	Share of FDI	Projects	Share of FDI
1	China	450 229	23,6%	471	46,3%
2	India	288 044	28,1%	1 362	22,6%
3	United States	217 494	62,6%	1 036	47,1%
4	South Korea	66 541	10,6%	47	38,3%
5	Saudi Arabia	65 240	15,9%	35	40,0%
6	Russia	59 180	17,6%	128	48,4%
7	Vietnam	43 096	84,2%	86	66,3%
8	Malaysia	38 278	25,5%	63	63,5%
9	Iran	32 465	13,4%	50	24,0%
10	Egypt	30 593	34,2%	35	40,0%
11	Taiwan	29 373	1,0%	21	14,3%
12	Mexico	27 284	92,3%	174	89,1%
13	Nigeria	21 259	9,1%	33	27,3%
14	Indonesia	20 314	76,5%	56	71,4%
15	Brazil	16 216	55,7%	77	70,1%
16	Algeria	14 572	18,1%	36	27,8%
17	Germany	13 986	30,1%	138	45,7%
18	Canada	13 375	59,9%	92	54,3%
19	Japan	12 154	26,7%	62	6,5%
20	Thailand	8 016	54,4%	64	67,2%
21	Sweden	7 329	9,1%	33	33,3%
22	Spain	7 286	93,6%	34	67,6%
23	Philippines	7 100	25,3%	53	41,5%
24	United Kingdom	6 884	81,0%	99	62,6%
25	Kazakhstan	6 531	57,7%	15	73,3%
26	Bahrain	6 486	4,4%	8	75,0%
27	Ethiopia	6 271	90,1%	19	78,9%
28	France	6 021	54,8%	115	38,3%
29	Hungary	5 935	80,8%	38	84,2%
30	United Arab Emirates	5 765	14,4%	41	53,7%
Global average			36,5%		46,5%

Top 30 countries for manufacturing investment, with share of FDI by amount invested and number of projects, 2016-2018.

Top foreign investor countries

The United States come first by number of FDI projects, slightly ahead of Germany and Japan. China, combined with Taiwan, is first for amounts invested abroad, and fourth by number of projects (with or without Taiwan). Switzerland manufacturers are sixth by number of projects, and 15th by amount invested¹.

Country	FDI projects	%
United States	348	13,5%
Germany	331	12,8%
Japan	317	12,3%
China	228	8,8%
France	136	5,3%
Switzerland	133	5,1%
India	120	4,6%
South Korea	101	3,9%
Canada	66	2,6%
United Kingdom	58	2,2%
Taiwan	57	2,2%
Austria	50	1,9%
Netherlands	46	1,8%
Italy	45	1,7%
Spain	37	1,4%
Belgium	32	1,24%
Finland	31	1,20%
Denmark	30	1,16%
Singapore	29	1,12%
Mexico	28	1,08%

Country	M\$ FDI	%
Taiwan	80 191	13,3%
China	64 649	10,7%
Saudi Arabia	63 696	10,6%
United States	57 482	9,5%
South Korea	43 921	7,3%
Germany	41 704	6,9%
Japan	41 185	6,8%
Netherlands	19 394	3,2%
Kuwait	19 000	3,2%
France	16 631	2,8%
Thailand	11 972	2,0%
South Africa	11 904	2,0%
Greece	10 000	1,7%
India	9 867	1,6%
Switzerland	9 665	1,6%
Singapore	9 562	1,6%
Italy	8 936	1,5%
Austria	6 313	1,0%
Brazil	6 280	1,04%
United Arab Emirates	4 978	0,83%

Top 20 investor countries for FDI, by number of projects (left) and amount invested (right). Percentages are in share of world FDI. In italics, countries which are only in one table, bordered countries in bold are in both rankings.

¹ Nestlé, LafargeHolcim, Sika, Ineos, ABB, Novartis...

Top companies in manufacturing investment

Almost 3000 groups were included in our database from 2016 to 2018. By amount invested, the Chinese holding company of the Tsinghua university, Tsinghua Holdings, tops the ranking, before Saudi Aramco and Samsung. By number of projects, seven Indian companies come in the top 20 positions, including the top three ranks. The automotive industry is also well represented by number of projects, with Toyota, Porsche and General Motors leading the sector.

Company	Projects
Banas Dairy	40
OP Jindal Group	30
Indian Oil (IOCL)	30
Toyota Motor	27
Porsche Automobil Holding	25
General Motors	24
Tata Group	23
Government of India	22
Aditya Birla Group	21
Cargill	21
Nestlé	20
Daimler	20
Continental	20
PSA Peugeot Citroën	19
General Electric	19
Dangote	19
LafargeHolcim	18
BASF	18
Samvardhana Motherson Group	16
Sika	16

Company	M\$
Tsinghua Holdings	79 447
Saudi Aramco	70 500
Samsung	51 604
Sinopec Group	33 629
Petronas	27 050
Formosa Plastics Group	26 003
OP Jindal Group	24 225
Zhejiang Rongsheng Holding Group	24 122
Rosneftegaz	20 580
Dangote	20 324
Taiwan Semiconductor Manufacturing	20 055
Saudi Aramco / Saudi Basic Industries Corporation (SABIC)	20 000
Indian Oil (IOCL)	19 170
BOE Technology	17 932
Tata Group	17 577
Oil and Natural Gas Corporation (ONGC)	16 996
Hon Hai Precision Industry	15 870
SK Group	15 104
Foxconn	14 763
Government of China	13 628

Top 20 companies by number of manufacturing projects announced (left) and by amount invested (right). The tables below give the detail of the Government of India and Government of China lines (in number of projects and amount invested respectively).

Government of India (detail)	22
Bharat Dynamics	5
Indian Railways	3
Rashtriya Ispat Nigam	2
Others	12

Government of China (detail)	13 628
Fujian Electronics & Information Group	5 500
China Electronics Corporation	4 062
Northwest Innovation Works	1 800
China National Technical Import & Export Corporation	1 650
Others	616

Engineers & contractors

Whenever the information is available we track, in dedicated fields, information about capacities, surfaces but also suppliers, contractors and customers. The table below consolidates engineers and contractors alongside the number of projects where they were listed (only suppliers with at least one foreign investment project were included in the final table. The first supplier is the Finnish company Valmet. After this, 7 of the top 20 are American companies (USA), and 6 are German.

Top 20 contracting / engineering companies mentioned among the manufacturing investments tracked by Trendeo, 2016-2018

Engineering /Supplier	Projects
Valmet (Finland)	25
Honeywell UOP (USA)	23
Siempelkamp (Germany)	21
TechnipFMC (USA)	21
Sinoma International Engineering (China)	20
Engineers India (India)	20
Andritz (Austria)	19
Jacobs (USA)	18
CB&I (USA)	18
KBR (USA)	17
FLSmidth (Denmark)	17
Fluor (USA)	17
Dieffenbacher (Germany)	17
Toyo Engineering (Japan)	12
ABB (Switzerland)	12
Gebr. Pfeiffer (Germany)	11
Bechtel (USA)	11
ThyssenKrupp Industrial Solutions (Germany)	10
Voith (Germany)	10
Loesche (Germany)	10

Manufacturing sectors

The *chemicals* industry is the first sector by number of projects and amounts invested, with 15% of projects tracked and almost a quarter of amounts invested (there are close links with the energy sector, the main projects being petrochemicals complexes, with actors such as Saudi Aramco, Sasol or Royal Dutch Shell). *Food* and the *automotive* industry come second and third, by number of projects, the food sector having one of the lowest amount invested by project. *Electronics* is second sector by amount invested, with an average amount invested of \$1,3 billion.

Sector	Projects	%	Jobs	%	M\$	%	M\$/project
Chemicals	862	15,5%	88 707	5,2%	402 830	24,4%	467
Food	725	13,0%	108 075	6,4%	38 584	2,3%	53
Automotive	645	11,6%	249 354	14,7%	157 827	9,6%	245
Non-metallic minerals	468	8,4%	71 227	4,2%	60 155	3,6%	129
Pharmaceutical	339	6,1%	41 633	2,5%	28 621	1,7%	84
Plastic and rubber	283	5,1%	66 421	3,9%	32 323	2,0%	114
Electronics	276	5,0%	493 858	29,1%	373 131	22,6%	1 352
Basic metals	272	4,9%	133 466	7,9%	132 044	8,0%	485
Electrical equipment	218	3,9%	73 624	4,3%	24 578	1,5%	113
Paper and cardboard	204	3,7%	36 003	2,1%	39 063	2,4%	191
Wood	176	3,2%	10 677	0,6%	8 252	0,5%	47
Machinery	166	3,0%	13 316	0,8%	6 205	0,4%	37
Fabricated metals	158	2,8%	19 994	1,2%	6 396	0,4%	40
Oil/gas refining and coke	151	2,7%	12 672	0,7%	296 029	17,9%	1 960
Beverage	113	2,0%	19 972	1,2%	7 969	0,5%	71
Aeronautics	112	2,0%	20 176	1,2%	11 400	0,7%	102
Textile	66	1,2%	69 514	4,1%	5 738	0,3%	87
Other industries	59	1,1%	21 802	1,3%	2 503	0,2%	42
Apparel	56	1,0%	79 840	4,7%	3 399	0,2%	61
Motorcycles	36	0,6%	17 457	1,0%	1 941	0,1%	54
Top 20	5 385	96,9%	1 647 788	97,0%	1 638 988	99,2%	304
27 other sectors	172	3,1%	50 302	3,0%	12 697	0,8%	74
Sum	5 557	100%	1 698 090	100%	1 651 685	100%	297

Manufacturing investments by sector, 2016-2018, in number of projects, jobs and amount invested. Last column: average amount invested by project.

Using a more detailed level of analysis, we have *cement*, *automobile* (cf. detail after) and *parts and accessories for motor vehicles* as top products by number of projects, and *refined petroleum*, *basic components for electronics* and *hydrocarbons* by amount invested.

Sector	Projects	%
Cement	328	5,9%
Automobile	279	5,0%
<i>Part and accessory for motor vehicle</i>	263	4,7%
Medicine	205	3,7%
Dairy	178	3,2%
Refined petroleum product	125	2,2%
Primary plastic	124	2,2%
Steel	122	2,2%
Biopharmaceutical	111	2,0%
Tire	110	2,0%
Hydrocarbon	106	1,9%
Plywood	85	1,5%
<i>Plastic material for various applications</i>	74	1,3%
<i>Plastic material for packaging</i>	73	1,3%
Industrial gas	65	1,2%

Sector	M\$	%
Refined petroleum product	277 296	16,8%
<i>Basic component for electronics</i>	238 820	14,5%
Hydrocarbon	166 049	10,1%
Automobile	131 832	8,0%
Primary plastic	116 771	7,1%
<i>Display component</i>	104 355	6,3%
Steel	90 186	5,5%
Cement	52 397	3,2%
<i>Nitrogen product</i>	32 735	2,0%
<i>Chemical fertilizer</i>	32 101	1,9%
Tire	27 666	1,7%
<i>Aluminium</i>	23 300	1,4%
<i>Pulp</i>	19 214	1,2%
<i>Battery</i>	18 325	1,1%
Biopharmaceutical	15 054	0,9%

Manufacturing investments by product, 2016-2018, in number of projects (left table) and amount invested (right table). In italics, products that are in one table only. Last column: average amount invested by project.

The detailed table for *automobile* product, below, shows the transition towards electrical vehicles, with 50 projects for *electric cars*, 14 for *electric buses*, one for *electric truck* and one project for *autonomous cars*.

Automobile, detailed level	Projects
Car	91
Electric car	50
SUV car	36
Truck (Large goods vehicle)	16
ND	16
Electric bus	14
Bus	13
Luxury car	9
Pickup truck	7
Off-road car	6
Light commercial vehicle	6
Automotive paint shop	3
Sports car	3
Semi Knock Down assembly	2
Electric truck	1
Automobile assembly	1
Utility Task vehicle (UTV)	1
Wing van	1
Car body	1
Chassis with engine	1
Autonomous car	1
Sum	279

Qualitative scores

Our *factories of the future* score aggregates six components defined with our partners²:

- **Flexibility:** the ability to switch from a product to another, enabling made-to-order manufacturing,
- **Digitalization:** the introduction of technologies such as IoT, robotics, automation,
- **Energy efficiency:** every measure taken to lower energy consumption compared with usual norms,
- **Social efforts:** measures undertaken for operations, through working conditions, health and safety concern, training, education and wages...
- **Territorial efforts:** decisions aiming at improving the relations between a production site and local communities and stakeholders, such as favoring local suppliers, funding schools, contributing to local social projects...
- **Environmental efforts:** reducing carbon footprint and pollution, water preservation...

Each criterion is ranked 0 (no mention in the news describing the investment), 1 (some measures described) or 2 (quantitative objectives defined for the criterion considered or insistence on it). Adding those 0-2 scores over six criteria gives a total Industry of the Future score which varies from 0 to 12.

Flexibility of the production is the first criteria mentioned in our data: 1101 projects (19,8%) mention one degree of the flexibility (score 1 or 2), with an average score of 0,28. Digitization is slightly below. Territorial efforts and environmental efforts are also close, mentioned in only 11% to 12% of manufacturing projects. Then come energy efficiency and finally social efforts. All in all, 41,5% of manufacturing projects mention at least on of our 6 criteria of the factory of the future.

	Score	Number of projects mentioned	%
Flexibility	0,28	1 101	19,8%
Digitization	0,26	1 075	19,4%
Environmental Efforts	0,180	633	11,4%
Territorial Efforts	0,120	666	12,0%
Energy Efficiency	0,119	433	7,8%
Social Efforts	0,09	352	6,3%
Factory of the future average score	1,05	2 304	41,5%

² Fives, EDF (Electricité de France) and the Institut de la réindustrialisation.

Top ten rated projects

There are, listed in the following table, the ten highest rated projects in our database (Tesla investment being the 9 rated score with the highest amount invested). The average score of a *manufacturing* investment is 1,05, similar to the average global score (1,03).

Project	Jobs	M\$	Efficiency	Flexibility	Digitization	Social Efforts	Environmental Efforts	Territorial Efforts	Score
Moon Ridge Foods is investing 54 MUSD in a new pork processing plant at Pleasant Hope (United States), creating 150 new jobs.	54	160	2	2	2	2	2	2	12
Sintex Industries is investing around 895 MUSD to set up a new textiles processing plant in Pipavav, near Rajula (India), which would create 8 000 jobs.	895	8 000	2	2	2	2	2	-	10
The central bank of Mexico built a banknote factory in El Salto Jalisco should be intelligent and autonomous in energy and water.	165	-	2	2	2	1	2	1	10
Suzano Papel e Celulose is investing 105 MUSD in Imperatriz (Brazil) to increase the production capacity of its pulp mill and allow it to manufacture toilet paper in 2017.	105	600	2	2	1	1	2	2	10
Mercedes-Benz is setting up a new, ultra-modern assembly plant ("Factory 56") for automobiles in Sindelfingen (Germany).	-	-	2	2	2	2	2	-	10
Festo inaugurates in Esslingen (Germany), its new plant "Industry 4.0" of electronic valves used in automation systems.	70	1 200	2	2	2	2	2	-	10
Japanese company Honda has invested 163 MUSD in a new scooter plant at Mandal (India), leading to creation of 4 000 new jobs.	163	4 000	2	-	2	2	2	2	10
Finnish company Huhtamaki has invested 6,4 MUSD in expanding its capacity of egg carton production at Lurgan (UK).	6	12	2	2	2	-	2	2	10
Austrian start-up company specialising in e-mobility, Kreisel Electric, is building its first factory for the production of electric vehicle batteries for 17 MUSD in Rainbach (Austria), which is expected to generate 130 jobs.	17	130	2	2	2	2	2	-	10
Tesla, along with Japanese partner Panasonic, is investing more than 5,1 bn USD in a huge, new lithium-ion battery cell and battery pack facility near Sparks (United States).	5 114	10 000	2	1	2	1	1	2	9

Factory of the future score, by sector

We selected only the sectors with more than 30 projects. The *beverage* sector comes first, mainly due to the highest score for **environmental efforts**, with technologies such as zero liquid discharge and/or water consumption reduction and highest score for **territorial efforts** (local sourcing mainly, even with one project aiming at import substitution). *Paper and cardboard* has the best score for **energy efficiency**, frequently quoting the use of a new machine as an energy saving mean. The *pharmaceutical* sector is the sector most frequently mentioning **flexibility**, with two meanings of the term: the ability to make different products (in different forms, such as tablets, powders...) but also to switch from low scale to higher scale production. **Digitization** is strongest in the *furniture* industry, with built to order and made to measure abilities. **Social efforts** are the least frequently mentioned. They can take many forms, such as higher wages, commitment to recruiting women, social benefits for health, retirement plans, but also tuition subsidies.

Sector	Average score
Beverage	1,64
Paper and cardboard	1,40
Wood	1,29
Basic metals	1,15
Chemicals	1,14
Food	1,13
Textile	1,06
Apparel	1,05
Automotive	1,02
Machinery	0,99
Electrical equipment	0,98
Motorcycles	0,97
Furniture	0,97
Other industries	0,95
Non-metallic minerals	0,93
Pharmaceutical	0,90
Fabricated metals	0,88
Oil/gas refining and coke	0,86
Aeronautics	0,83
Plastic and rubber	0,82
Electronics	0,77

Factory of the future, by country and company – and at the end, the Germans win

Projects in Germany top the ranks for the factory of the future score, with an average German score of 1,7, 60% better than global average. This position is in line with the first position obtained by BMW in the score by company. Other German groups such as Daimler, Porsche or Siemens are among the top 20 companies. The Algerian group Cevital is among the less-known companies in our rankings, with investments in the food sector but also in steel industry.

Country	Average score
Germany	1,70
Brazil	1,57
Spain	1,44
Russia	1,33
Nigeria	1,30
Malaysia	1,29
Sweden	1,27
Canada	1,23
United Arab Emirates	1,17
United Kingdom	1,15
United States	1,13
South Africa	1,12
Japan	1,11
France	1,08
India	0,99

Rank	Company	Average score
1	BMW	2,91
2	Voestalpine	2,36
3	Honda	2,31
4	Tata Group	2,26
5	Daimler	2,10
6	Nestlé	1,85
7	Yara	1,73
8	Volcan Investments	1,70
9	Porsche Automobil Holding	1,64
10	Toyota Motor	1,63
11	Air Products	1,58
12	OP Jindal Group	1,47
13	Siemens	1,47
14	UPM-Kymmene	1,45
15	Patanjali Group	1,43
16	Air Liquide	1,40
17	Bridgestone Corporation	1,40
18	Cevital Group	1,40
19	General Electric	1,37
20	General Motors	1,29

Top projects

The following table lists the ten biggest manufacturing investments announced since January 2016 (we recorded in our database some projects that had been announced before but were discussed again since January 2016). Those ten investments represent 14% of the total amount invested through the manufacturing projects tracked by Trendeo.

Description	M\$
(Update) Saudi and Indian state-owned oil companies are planning to invest 44 bn USD to set up the world's largest refinery and petrochemical complex at Babulwadi, near Rajapur (India).	44 000
Tsinghua Unigroup is investing 30 bn USD, including 10 bn USD in the initial phase, for a new memory chip plant at Nanjing (China).	30 000
(Update) Petronas, with Saudi Aramco, is investing 27 bn USD to set up a new large complex of petrochemical plants in Pengerang (Malaysia), which should generate more than 4,000 permanent jobs by 2019.	27 000
(Update) Zhejiang Petroleum and Chemical is investing 24,1 bn USD to set up a new mega petrochemicals refinery near Daishan (China).	24 122
(Update) State-owned Tsinghua Holdings merged its memory chipmaking operations with Wuhan Xinxin Semiconductor Manufacturing Corporation (XMC), and invests 24 billion USD to build a semiconductor manufacturing mega-complex in Wuhan (China).	24 000
Far East Petrochemical Company, a subsidiary of Rosneft, is developing, along with ChemChina, a new petrochemical and crude oil refining project, including the world's largest steam cracker, near Nakhodka (Russia) for an investment of more than 20 bn USD.	20 400
Saudi Aramco and Saudi Basic Industries Corporation (SABIC) are planning to invest around 20 bn USD to set up a new crude-to-chemicals plant in Saudi Arabia.	20 000
Saudi-U.S. company Sadara Chemical has invested 20 bn USD in a huge new chemical complex at Jubail (Saudi Arabia).	20 000
(Update) Taiwan Semiconductor Manufacturing (TSMC) is investing more than 17 bn USD to set up an advanced semiconductor chip manufacturing facility ("Fab 18") near Tainan (Taiwan).	17 055
Tsinghua Unigroup is investing 16 bn USD for a new memory chip plant at Chengdu (China).	16 000

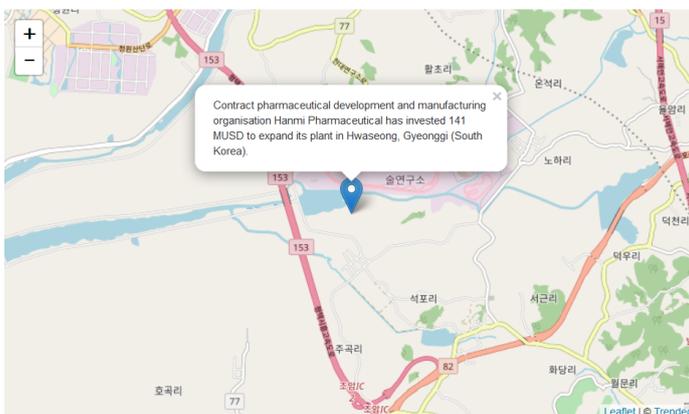
Detailed Sample

Each operation is described on a dedicated page in the database, including information such as production capacity.

Contract pharmaceutical development and manufacturing organisation Hanmi Pharmaceutical has invested 141 MUSD to expand its plant in Hwaseong, Gyeonggi (South Korea).

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<p>Company Name : Hanmi Pharmaceutical</p> <p>Date of announcement : 2018-03-27</p> <p>Product : Medicine</p> <p>Type of product : Tablet - Capsule</p> <p>Maximum capacity pro... : 10 billion pills a year</p> <p>Description of the proje... : The project has taken the site's capacity from 2 to 12 billion pills per year. This will enable the company to expand exports of finished medicines and its consignment businesses. The plant has introduced the latest continuous process system to prevent cross-contamination. The new plant is near to the company's R&D lab. This proximity is expected to give the company a competitive edge in promoting contract development and manufacturing organisation (CDMO) business.</p> <p>Hanmi Science is the largest shareholder in the company, with more than 41% direct stake.</p> <p>Factories of the future's... : 5</p> <p>Factories of the Future ... : It is a "smart plant, with the aim of full automation from production to distribution. It makes use of RFID, or radio-frequency identification, systems which uses electromagnetic fields to automatically identify and track tags attached to objects. The plant can produce various forms of drugs such as tablets (double layer, film-coated, and uncoated), hard gelatin capsules, and poly capsules. Production capacity is also flexible depending on the goal: from a small amount for experimental drugs to mass production.</p> <p>The plant was designed by Kajima Construction and built by Samsung Engineering in compliance with the current good manufacturing practice (cGMP), a set of U.S. Food and Drug Administration regulations regarding the design, monitoring, control, and maintenance of manufacturing processes and facilities. The plant maximised its manufacturing efficiency with vertical placement of production lines, a departure from traditional horizontal placement.</p> <p>Flexibility : 2</p> <p>Digitalisation and nume... : 2</p> <p>Social efforts : 1</p> <p>Link : www.pnewswire.com/news-releases/hanmi[...]plant-300620081.html</p> <p>In addition : www.businesskorea.co.kr/english/.../9917-sm[...]actory-expand-exports m.koreaherald.com/view.php/view.php www.hanmipharm.com/ehanmi/.../Company-CompanyIntro</p> <p>Tags : Add a tag </p>	<h3>The operation</h3> <p>Number of jobs : ND Amount of investment : 141 (MUSD) Type of operation : Expansion Beginning of construction : 2015 S1 Beginning of commercial operation : 2017 S1 Land area (hectares) : 4 Building area (m2) : 0</p> <h3>Company</h3> <p>Parent company : Hanmi Science Type of company : Mid-sized Country : South Korea, France Website : www.hanmipharm.com/ ISIN code : KR7128940004</p> <h3>Industrial sector</h3> <p>Type of production : Manufacturing Industrial sector : Pharmaceutical ISIC : C2100 Manufacture of pharmaceuticals, medicinal chemical and botanical products Finished good : Yes End market : Healthcare</p> <h3>Geographic details</h3> <p>City : Hwaseong-si Region Gyeonggi-do Country South Korea</p> <h3>Related companies</h3> <p>Finance / shareholders : Hanmi IT National Pension Service of Korea South Korea (national government)</p>
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Contact

This document is a short synthesis of the data available in the Industries & Strategies database about manufacturing investments. You can learn much more about this database by contacting Trendeo:

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