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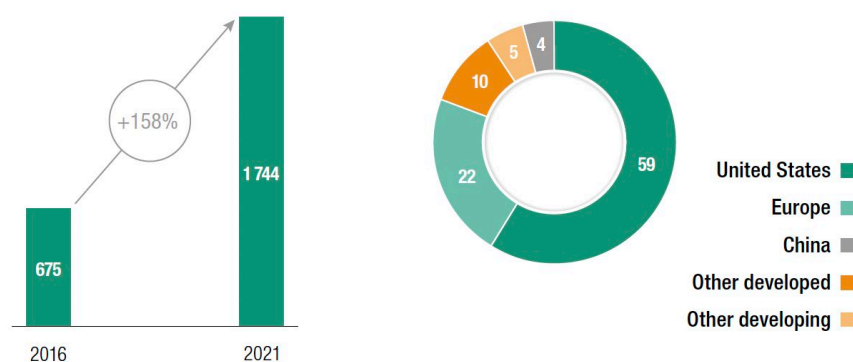
Digital MNEs are growing at breakneck speed

The top 100 MNEs are changing the nature of cross-border investment. Their international production footprint, which was already expanding, grew even faster during the pandemic.

H I G H L I G H T S

- *Multinational enterprises (MNEs) in the digital economy are transforming international trade and investment.* UNCTAD's new ranking of the top 100 digital MNEs, which updates the first edition published in [WIR2017](#), shows the impact of the COVID-19 pandemic on the performance and global asset footprint of the largest MNEs.
- *Total sales of the top 100 were almost 160% higher in 2021 than in 2016, an average increase of 21% per year.* Net income increased by 23% per year with a significant growth spike of +60% between 2020 and 2021. This compares with an essentially flat trend for the traditional top 100 MNEs, excluding those in the technology sector.
- *The digital top 100 is very dynamic.* While the ranking of the traditional top 100 is relatively stable with 3-4 new MNEs every year, the digital top 100 shows significant change. Over the 5-year period, as many as 39 new companies joined the ranking replacing others that were acquired or outranked. The number of internet platforms on the list increased from 11 to 15, with 9 new entrants. In the digital solutions segment, the number of MNEs increased from 26 to 34, and in the e-commerce segment from 18 to 21.
- *The digital top 100 remains highly concentrated geographically.* Although several of the new firms in the ranking have their headquarters in developing countries, the list is still dominated by companies from developed economies, mostly from the United States (59) and Europe (22). A few digital MNEs from South-East Asia and Latin America are gaining global relevance.

Figure 1. Increase in sales of the top 100 digital MNEs, and geographical distribution of headquarters
(Billions of dollars, number of MNEs)



Source: UNCTAD.

- *The “FDI lightness” of the digital top 100 increased further.* Their foreign asset footprint decreased since 2016, while foreign sales grew. The ratio between foreign sales and foreign assets increased by 11%, with most of the rise taking place in 2021 (+9%) due to the spike in sales caused by the pandemic.
- *Despite this overall trend, the pandemic did push some digital MNEs to invest in overseas operations.* e-Commerce MNEs, in particular, increased greenfield investments (mostly in logistics and distribution projects) by 120% in 2020 and a further 10% in 2021.
- *The growing relevance of digital MNEs in international production generates both challenges and opportunities for developing countries.* On the one hand, FDI by digital MNEs often brings relatively few physical assets and employment. On the other, it can stimulate the development of all-important digital (hard and soft) infrastructure and e-commerce opportunities for local firms.

* * *

Context

The development opportunities related to the digital economy can be significant; but there are also challenges. It can provide a boost to competitiveness across all sectors, new opportunities for business and entrepreneurial activity, and new avenues for market access and participation in global value chains. Digital companies have shown incredible growth momentum in the last decade, which was further boosted by the pandemic.

Digitals are a very dynamic group of companies that, based on firm-specific advantages in intangibles, network effects and digital assets can reach scale in a short time and expand abroad seamlessly. They are transforming not just traditional industries but also traditional forms of international production (trade and investment in global value chains). As such, the global expansion of digital MNEs is highly relevant for the development strategies of host economies.

UNCTAD's *World Investment Report 2017* ([WIR2017](#)) included the first ranking of the top 100 digital MNEs and investigated the effect of digitalization on global investment patterns. This Special Issue of the Global Investment Trends Monitor – published during UNCTAD's eCommerce Week – presents an update of the ranking and of the investment footprint of digital MNEs. The update is timely because:

- (i) a 5-year time span is sufficient to look at evolutionary trends,
- (ii) the period includes the COVID-19 pandemic, which has provided a huge boost to digital activities, and
- (iii) ongoing international tax reforms and the latest development in the Digital Services Act of the European Union, which include specific rule changes addressing the digital economy, make it interesting to assess which firms and activities will be most affected.

The rapid growth of the top 100 is evident from the increase over the 6-year period of sales (158%), assets (165%) and net income (181%) (figure 2).

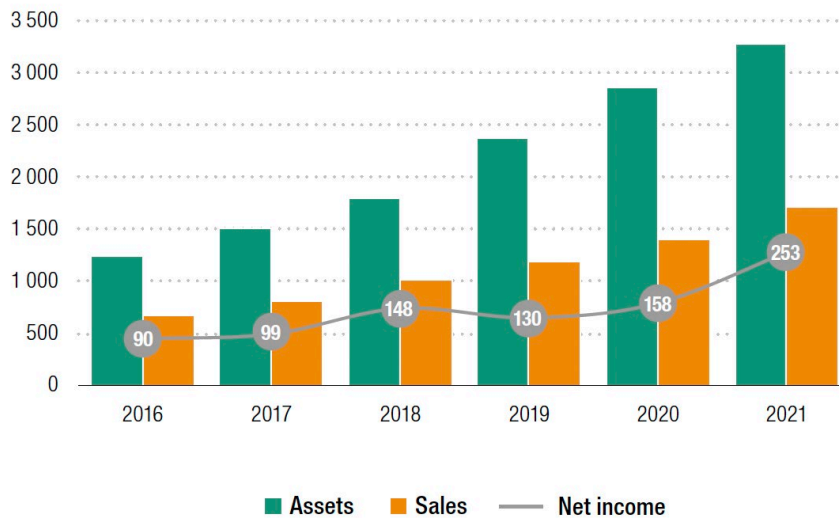
UNCTAD's Top 100 Digital MNEs

Key criteria for inclusion

- Largest global publicly listed companies
- Core business in one of four digital economy segments: platforms, solutions, content, e-commerce
- More than 10% of assets and/or sales outside their home market

For methodology, see [World Investment Report 2017](#), and UNCTAD Insights in [Transnational Corporations](#), April 2022.

Figure 2. Evolution of assets (TA), sales (TS) and net income for the top digital MNEs, 2016–2021
(Billions of dollars)



Source: UNCTAD.

The top 100 digital MNEs is highly dynamic

The inherent dynamism of digital companies, coupled with the acceleration in the adoption of digital solutions caused by the pandemic, is reflected in a significant number of new companies in the top 100. In 2020 and 2021 abundant cash reserves, low interest rates and soaring equity markets fueled M&A activity and Initial Public Offerings (IPO). Tech start-ups made popular by the pandemic digitalization rush tapped equity markets to scale up and expand their businesses (*WIR2021*). Half of the new entrants in the ranking had their IPOs in the last 5 years. In the United States, IPO volumes almost doubled in 2021, after already high levels in 2020, with the debut of companies such as the dating app Bumble, Nubank, the Brazilian financial technology group, and the ride-hailing company Grab (Singapore). For many of these companies it will take time before they can leverage home market strength and expand abroad. They are therefore not yet included in the top 100 digital MNEs. But their fast growth and financial firepower means that the ranking will remain dynamic over the coming years, with many potential entrants in the pipeline.

In the updated ranking, the segment that saw the highest relative number of new entrants was internet platforms (9 out of the current 15) and e-commerce (9 out of 21), with the IPO of relevant digital firms that were private during the compilation of the first top digital ranking like Airbnb (United States), Didi Global (China), Uber (United States) and WeWork (United States). In both cases new entrants represent almost half of the companies in the group. In absolute terms the digital solutions segment had the highest number of new entrants (14) (table 1).

Among the companies that fell out of the ranking over the 5-year period, almost a third (14) were acquired by others. This is the case of LinkedIn (acquired by Microsoft), Priceline (Booking Holdings, United States), Viacom (National Amusement, United States), Sky (Comcast, United States), and others. Another third were outranked by other companies, e.g. Mediaset (Italy), Konami (Japan) and Factset (United States).

Digital solutions is the segment with the most companies (34) followed by digital content, however they only accounted for 31% of the total revenue of the top 100 in 2021. E-commerce is the segment with the highest share of revenues in the ranking, due to the presence of big firms like Amazon (United States) and Alibaba (China). These two companies together correspond to 34% of revenues and 17% of assets of the top 100.

Table 1. Top Digital MNEs: descriptive statistics, 2017 and 2022 rankings
(Number of firms, billions of dollars, per cent)

		Number of MNEs			Average sales per company (\$ billion)		
		2017	2022	Change	2017	2022	Change (%)
Internet platforms	Search engine	3	4	+1	27.6	71.9	160.6
	Social network	5	7	+2	5.5	19.9	261.0
	Other platforms – shared economy	3	4	+1	4.6	13.9	202.1
	Total	11	15	+4	11.3	32.2	184.6
Digital solutions	Electronic payments	5	4	-1	6.2	11.2	81.1
	Fintech	-	2	+2	-	15.1	..
	Software provider	-	2	+2	-	3.6	..
	Other digital solutions	21	26	+5	3.7	6.0	61.0
	Total	26	34	+8	4.2	7.0	66.0
E-commerce	Delivery	-	3	+3	-	3.5	..
	Internet retailer	13	13	-	11.9	50.9	327.1
	Other e-commerce	5	5	-	4.8	7.8	63.4
	Total	18	21	+3	9.9	33.9	242.2
Digital content	Digital media	22	9	-13	11.9	16.1	35.1
	Games	7	9	+2	4.5	11.9	165.1
	Information and data	16	12	-4	3.7	4.8	29.1
	Total	45	30	-15	7.8	10.3	32.2
Total		100	100	-	7.6	17.4	129.0

Source: UNCTAD.

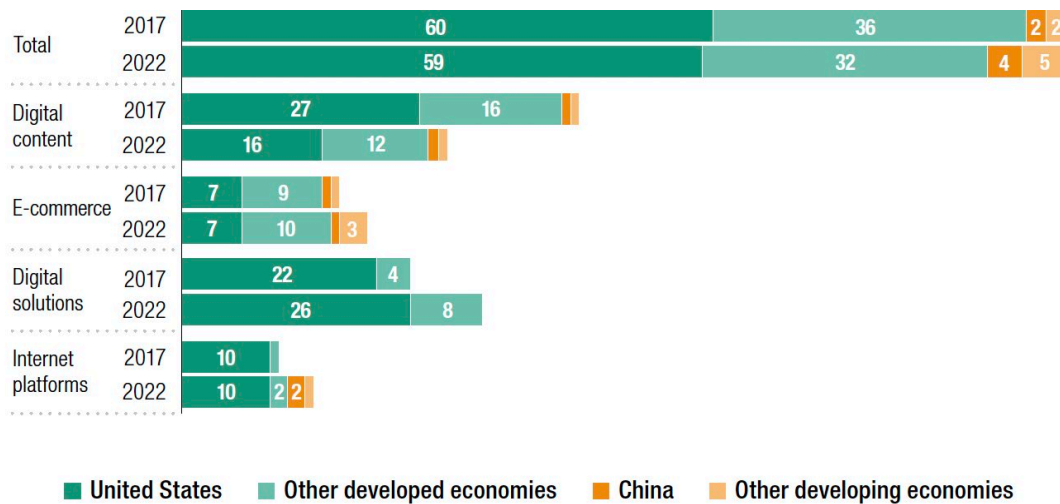
Notes: Years correspond to when the rankings were elaborated. The data on sales correspond to fiscal years 2015 and 2021, respectively.

The geographical distribution of the top 100 is still very concentrated

The ranking is still dominated by companies from developed economies, mostly from the United States (59) and other developed economies (32). However, there are companies gaining global relevance from South-East Asia and Latin America, e.g. Mercadolibre from Argentina, and Jooy and Sea from Singapore (figure 3).

Especially for e-commerce MNEs local knowledge is proving an important factor, as evidenced by the higher share of non-American MNEs. Geographical diversity also increased in the internet platforms segment due to the entry of companies from China, Singapore and Europe. In particular, the Chinese search engine Baidu has increased its foreign operations since 2016, including by entering a partnership with the American social network company Snap. Despite their economic importance, preeminent Chinese digital companies (like Meituan and JD.com) are not represented in the ranking due to their focus on the large domestic market.

Figure 3. Geographical breakdown of the top 100 digital MNEs, 2017 and 2022 (Number)



Source: UNCTAD.

Digital MNEs have a light international asset footprint

Digital MNEs can penetrate foreign markets with little or no investment in physical assets; the ratio between the share of sales generated by foreign affiliates and the corresponding share of foreign assets (the FDI lightness index) is very high compared to that of UNCTAD's regular top 100 MNEs. The sales of traditional MNEs in UNCTAD's top 100 (excluding technology MNEs) between 2016 and 2020¹ grew at a much lower rate than those of top digital companies (table 2). The difference between digitals and traditional MNEs is even more striking when looking at the FDI lightness index; for pure platform companies it is more than double that of traditional MNEs.

Table 2. Sales growth rate between 2016-2020, and FDI lightness: comparison between traditional top 100 MNEs and top digitals (Per cent and ratio)

	total sales % increase	FDI lightness		
	2016-2020	2016	2020	Change (%)
Traditional MNEs	10	1	0.99	-1
Internet platforms	212	2.25	2.19	-3
Digital solutions	110	1.85	2.46	33
E-commerce	222	1.03	1.08	4
Digital content	68	1.32	1.28	-3
Top digital	108	1.37	1.45	6

Source: UNCTAD.

Note: for traditional MNEs data for fiscal year 2021 is not yet complete. FDI lightness index is the ratio of the share of foreign sales to the share of foreign assets.

Foreign asset lightness varies between segments of the digital economy (table 2): internet platforms have the lightest ratio. Their business model is easily scalable internationally; it does not necessarily require physical capital investment in each of the markets where they generate sales. In contrast, e-commerce firms are increasingly relying on their own large-scale distribution centers across the world, driving up their foreign asset share.

¹ Financial data for fiscal year 2021 of the top 100 MNEs is not yet complete.

Digital content MNEs are in large part traditional firms that have transformed or expanded into digital markets (“gone digital” rather than “born digital”). They often still engage in the physical production of their content, and maintain a relatively higher FA share.

Table 3. Change in FDI lightness, 2017 and 2022
(Per cent, percentage points and ratio)

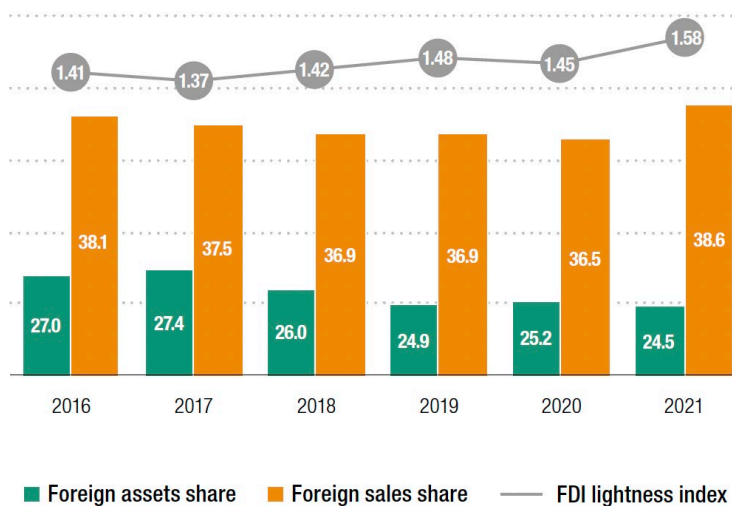
	Share of foreign sales (%)			Share of foreign assets (%)			FDI lightness		
	2017	2022	Change (percentage point)	2017	2022	Change (percentage point)	2017	2022	Change (%)
Internet platforms	50	48	-2	19	21	2	2.63	2.32	-12
Digital solutions	32	37	5	17	17	-	1.90	2.21	16
E-commerce	42	36	-6	38	30	-8	1.11	1.21	9
Digital content	36	33	-3	32	30	-2	1.14	1.12	-2
Top digital	40	39	-1	27	25	-2	1.49	1.58	6

Source: UNCTAD.

Note: Years correspond to when the rankings were elaborated. The data on sales corresponds to fiscal years of 2015 and 2021, respectively. FDI lightness index is the ratio of the share of foreign sales to the share of foreign assets

Table 3 compares the foreign asset lightness of the top 100 digitals in 2017 and 2022. FDI lightness increased since 2016 and most of the increase took place in 2021, pushed by the sales increase during the pandemic (figure 4).

Figure 4. Evolution of FA and FS shares and FDI lightness in Top Digitals, 2016–2021
(Per cent and ratio)



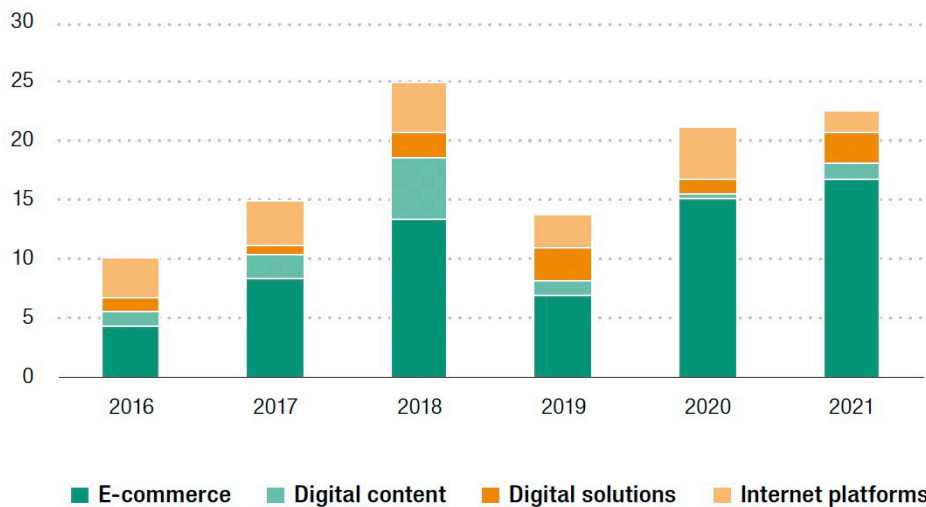
Source: UNCTAD.

The increase can be explained in part by the change in the composition of the top 100. The new entrants were on average 30% lighter than the companies that stayed in the ranking. Digital solutions entrants were twice as light as their peers carried over from the previous list. The overall lightness increased by 5% over the 5-year period. Internet platforms became slightly less asset light, indicating that they increased physical asset investments overseas to support their international growth. One explanation lies in the vertical integration being pursued by major platforms, and their expansion across business segments. For example, Alphabet (United States) decreased

its asset lightness ratio from 2.2 to 2 over the period. A preliminary analysis of cross-border investment projects by the top 100 confirms this trend.

For e-commerce MNEs the increased foreign asset lightness is fully attributable to the new entrants. Typically, digital MNEs do not engage much in greenfield investments, and most of their investment abroad is related to acquisitions of competitors or valuable startups. E-commerce companies are the exception, because they need to set up their networks of warehouses and distribution facilities. The soaring e-commerce activity due to the pandemic translated in an increase in greenfield investments (mostly in logistics and sales related projects) by 120% in 2020 and a further 10% in 2021 (figure 5). Much of it was accounted for by e-commerce giant Amazon (United States).

Figure 5. Greenfield investment, 2016 - 2021
(Billions of dollars)



Source: UNCTAD, based on Financial Times Ltd, fDi Markets (www.fdimarkets.com).

Born-digital companies are asset lighter than gone-digitals – traditional businesses that transition to the digital economy. Especially in the digital solutions and e-commerce segments, born digitals stand out. Furthermore, MNEs that directly interact with customers (B2C) are typically lighter than their B2B counterparts. For digital platforms B2C MNEs are 40% lighter.

Table 4. FDI lightness ratio by category and type, 2021

	Born versus gone digital		B2B versus B2C	
	Born	Gone	B2B	B2C
Internet platforms	2.32	-	1.98	2.76
Digital solutions	2.98	1.83	2.20	2.28
E-commerce	1.19	0.68	0.93	1.08
Digital content	1.07	1.24	1.07	1.21
Total	1.58	1.43	1.45	1.61

Source: UNCTAD.

This Special Issue of UNCTAD's Global Investment Trends Monitor updates the original work first published in the *World Investment Report 2017: Investment and the Digital Economy*. Further insights on the international investment profile and the investment activities of the MNEs in the top 100 will be included in the *World Investment Report 2022*, scheduled for publication in June.

Annex Table. Top Digital MNEs by sales or operating revenue, 2021
(Millions of dollars and per cent)

Classification first level	Company name	Headquarters	Classification second level	Total sales (\$ million)	Total assets (\$ million)	Share of foreign sales (%)	Share of foreign assets (%)
1	Alphabet	United States	Search engine	257 637	359 268	54.2	27.5
2	Meta Platforms	United States	Social network	117 929	165 987	56.3	20.7
3	DIDI Global	China	Other platforms – shared economy	21 722	22 569	7.5	..
4	Baidu	China	Search engine	19 599	59 828	..	8.2
5	Uber Technologies	United States	Other platforms – shared economy	17 455	38 774	45.4	7.9
6	eBay	United States	Other platforms – shared economy	10 420	26 626	59.6	15.4
7	Airbnb	United States	Other platforms – shared economy	5 992	13 708	51.2	18.2
8	Naver	Republic of Korea	Search engine	5 739	28 360	3.1	25.1
9	Twitter	United States	Social network	5 077	14 060	44.1	2.3
10	Yandex	Netherlands	Search engine	4 777	6 914	6.5	4.6
11	Snap	United States	Social network	4 117	7 536	30.3	13.7
12	IAC/Interactivecorp	United States	Social network	3 700	12 300	19.6	4.3
13	Match Group	United States	Social network	2 983	5 063	53.1	15.0
14	JOYY	Singapore	Social network	2 619	9 120	81.1	38.7
15	Pinterest	United States	Social network	2 578	3 537	22.3	11.9
Total				482 344	773 652	48.5	20.9
Internet platforms, median – unweighted						44.7	14.3
16	Amazon.com	United States	Internet retailer	469 822	420 549	40.4	43.7
17	Alibaba Group	China	Internet retailer	109 480	257 978	6.8	0.0
18	Rakuten Group	Japan	Internet retailer	14 614	146 257	17.6	24.0
19	Qurate Retail	United States	Other e-commerce	14 044	16 249	21.6	31.3
20	Wayfair	United States	Internet retailer	13 708	4 570	15.9	18.6
21	Zalando	Germany	Internet retailer	11 770	7 841	45.6	..
22	Booking Holdings	United States	Other e-commerce	10 958	23 641	88.5	82.3
23	Sea	Singapore	Internet retailer	9 955	18 756	36.2	22.8
24	Expedia Group	United States	Other e-commerce	8 598	21 548	23.6	5.7
25	Mercadolibre	Argentina	Internet retailer	7 069	10 101	75.3	87.3
26	Bechtle	Germany	Internet retailer	6 031	3 433	37.1	47.1
27	Naspers	South Africa	Internet retailer	5 934	53 817	85.8	..
28	ASOS	United Kingdom	Internet retailer	5 379	3 967	57.8	..
29	Just Eat Takeaway.com	Netherlands	Delivery	5 110	20 208	91.5	99.8
30	Amadeus IT Group	Spain	Other e-commerce	3 035	12 712	97.4	87.1
31	Delivery Hero	Germany	Delivery	3 019	7 043	100.0	80.8
32	Copart	United States	Internet retailer	2 693	4 562	18.5	17.0
33	IMarketKorea	Republic of Korea	Internet retailer	2 637	943	14.2	..
34	Interpark	Republic of Korea	Internet retailer	2 623	1 393	13.0	..
35	WeWork	United States	Other e-commerce	2 570	21 756	87.7	88.1
36	Deliveroo	United Kingdom	Delivery	2 468	2 124	49.7	15.9
Total				711 517	1 059 446	36.1	30.0
E-commerce, median – unweighted						40.4	37.5
37	Salesforce.Com	United States	Other digital solutions	26 492	95 209	30.7	..
38	PayPal	United States	Electronic payments	25 371	75 803	46.0	20.2
39	Fiserv	United States	Fintech	16 226	76 249	13.0	..
40	Automatic Data Processing	United States	Other digital solutions	15 005	48 773	12.8	13.6
41	FIS	United States	Fintech	13 877	82 931	23.9	..
42	VMware	United States	Other digital solutions	12 851	28 676	50.0	21.8
43	Insight Enterprises	United States	Other digital solutions	9 436	4 689	20.7	..
44	Global Payments	United States	Electronic payments	8 524	45 280	16.0	34.9
45	Adyen	Netherlands	Electronic payments	6 816	6 566	55.3	..
46	Equinix	United States	Other digital solutions	6 636	27 919	54.9	55.7
47	ServiceNow	United States	Other digital solutions	5 896	10 798	36.4	36.8
48	Nasdaq	United States	Other digital solutions	5 886	20 115	17.1	34.5
49	Roper Technologies	United States	Other digital solutions	5 778	23 714	15.6	14.3
50	NetApp	United States	Other digital solutions	5 744	9 360	46.1	35.2
51	Workday	United States	Other digital solutions	5 139	10 499	24.8	15.6
52	Broadridge Financial Solutions	United States	Other digital solutions	4 994	8 120	12.5	39.8
53	Shopify	Canada	Other digital solutions	4 612	13 340	93.4	18.3
54	Autodesk	United States	Other digital solutions	4 386	8 607	66.2	30.5
55	Amdocs	United States	Other digital solutions	4 289	6 512	34.9	86.5
56	Palo Alto Networks	United States	Other digital solutions	4 256	10 242	35.4	20.7

Classification first level	Company name	Headquarters	Classification second level	Total sales (\$ million)	Total assets (\$ million)	Share of foreign sales (%)	Share of foreign assets (%)
57	Worldline	France	Electronic payments	4 194	24 021	78.4	..
58	GoDaddy	United States	Other digital solutions	3 816	7 417	33.3	12.4
59	Epam Systems	United States	Software provider	3 758	3 523	12.5	47.1
60	Akamai Technologies	United States	Other digital solutions	3 461	8 139	44.4	..
61	Open Text	Canada	Software provider	3 386	9 609	95.1	67.9
62	Fortinet	United States	Other digital solutions	3 342	5 919	68.7	33.9
63	Citrix Systems	United States	Other digital solutions	3 217	6 976	45.4	23.0
64	transcosmos	Japan	Other digital solutions	3 039	1 589	18.2	29.1
65	Rackspace Technology	United States	Other digital solutions	3 010	6 329	72.0	77.4
66	Alight	United States	Other digital solutions	2 915	10 988	13.7	10.4
67	Exclusive Networks	France	Other digital solutions	2 823	3 267	87.7	..
68	Applovin	United States	Other digital solutions	2 793	6 164	38.3	2.3
69	Cimpress	Ireland	Other digital solutions	2 593	2 182	53.7	20.0
70	Sage Group	United Kingdom	Other digital solutions	2 487	4 485	79.5	80.5
Total				237 046	714 008	36.6	16.6
Digital solutions, median – unweighted						37.3	29.1
71	Tencent Holdings	China	Games	86 832	253 831	7.0	30.7
72	Walt Disney	United States	Digital media	67 418	203 609	19.7	12.3
73	Netflix	United States	Digital media	29 698	44 585	55.7	24.9
74	Discovery	United States	Digital media	12 191	34 427	36.6	37.6
75	Spotify Technology	Luxembourg	Digital media	10 991	8 151	99.9	81.7
76	Activision Blizzard	United States	Games	8 803	25 056	45.2	40.4
77	S&P Global	United States	Information and data	8 297	15 026	39.6	11.1
78	RTL Group	Luxembourg	Digital media	7 545	11 923	67.5	67.5
79	Thomson Reuters	Canada	Information and data	6 348	22 149	97.1	91.4
80	Moody's	United States	Information and data	6 218	14 680	45.0	69.3
81	Electronic Arts	United States	Games	5 629	13 288	56.0	19.1
82	Wolters Kluwer	Netherlands	Information and data	5 424	10 263	95.8	88.7
83	Experian	Ireland	Information and data	5 372	10 071	34.3	48.6
84	Entain	Isle of Man	Games	5 182	9 811	53.0	45.1
85	ProSiebenSat 1 Media	Germany	Digital media	5 109	7 488	22.0	18.7
86	Grupo Televisa	Mexico	Digital media	5 053	14 297	13.0	2.1
87	Equifax	United States	Information and data	4 924	11 041	22.1	43.8
88	Gartner	United States	Information and data	4 734	7 416	35.7	..
89	Alliance Data Systems	United States	Information and data	3 855	21 746	16.7	35.6
90	Nielsen Holdings	United States	Information and data	3 500	10 820	41.5	11.3
91	Axel Springer	Germany	Digital media	3 489	7 681	45.5	68.6
92	Take-Two Interactive Software	United States	Games	3 373	6 028	40.2	31.8
93	Graham Holdings	United States	Digital media	3 186	7 426	22.0	..
94	Verisk Analytics	United States	Information and data	2 999	7 808	23.4	47.9
95	TransUnion	United States	Information and data	2 960	12 635	39.5	45.1
96	Micro Focus International	United Kingdom	Information and data	2 900	10 347	96.5	34.4
97	Zynga	United States	Games	2 801	6 359	38.6	40.5
98	Ubisoft Entertainment	France	Games	2 608	5 729	93.0	..
99	Playtika Holding	Israel	Games	2 583	2 803	85.7	..
100	Sega Sammy Holdings	Japan	Games	2 509	3 808	31.4	14.5
Total				322 328	820 301	33.2	29.7
Digital content, median – unweighted						39.9	39.0
Top digital MNEs				1 753 235	3 367 407	39.1	25.0
Top digital MNEs, median – unweighted						40.2	29.1

Source: UNCTAD.

Note: Sales and assets correspond to fiscal year 2021.



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