

The background of the page features a stylized world map in a light teal color. Overlaid on the map are several financial charts, including a line graph with multiple data series and a bar chart, all rendered in a darker teal shade. A solid orange vertical line runs down the left side of the page, starting from the top and extending past the bottom of the text area.

TECHNICAL ANNEX:

# THE TOP 100 DIGITAL MNEs

World Investment Report 2017–Chapter IV

# THE TOP 100 DIGITAL MNEs

Chapter IV of the *World Investment Report 2017*, “Investment and the Digital Economy”, presents an analysis of digital and ICT MNEs. It is based on a selection of companies developed specifically for the Report. A basic sample description of these MNEs has been provided in the Report itself (box IV.2). This technical annex contains the full lists of digital MNEs and ICT MNEs as used in the Report, details on the method of selection, and caveats and points of attention.

## 1. Selection and classification of the top digital and ICT MNEs

### *Perimeter of the analysis and selection criteria*

The definitions of digital MNEs and ICT MNEs follows the classifications shown in figure IV.4 in the Report. Annex table IV.A.1 provides a more detailed description of the target groups, as well as caveats or points of attention relative to each group.

Companies in the categories defined in annex table IV.A.1 are subject to further selection based on the following criteria:

- i. Multinational companies.* This condition follows from the main objective of the study, the analysis of the international footprint of digital firms. It employs an operational definition of multinational enterprise specific to this analysis, which may differ from other standard definitions. In this context, a company qualifies as MNE if
  - a. Its foreign revenues or foreign assets (or both) are more than 10 per cent of the total, or
  - b. It has a significant number of subsidiaries outside the home economy (excluding affiliates in offshore financial centres).

These conditions primarily affect companies operating in large domestic markets, such as China or the United States, which may reach massive scale without qualifying as MNEs. Examples are the Chinese platforms Baidu and NetEase, both incorporated in the Cayman Islands but operating largely in China, with limited international presence. The same applies to some major United States e-commerce firms such as CDW.com and HSN – they are excluded because of their limited international footprint. Among telecom MNEs there are several large operators that focus on their domestic market (e.g. Verizon in the United States and China Mobile).

- ii. Listed companies.* The reference units for this analysis are corporate legal entities listed on stock exchanges worldwide. This condition helps to prevent the double-counting of consolidated accounts within the same corporate group, because few subsidiaries of listed parents are listed on their own. Listed holding companies that consolidate (unlisted) internet brands are common among digital MNEs. Examples include the case of Alphabet (parent company of Google and YouTube), or the digital conglomerate IAC/Interactive (controlling many popular internet portals such as About.com, Vimeo, Meetic, Investopedia and until recently also Expedia and TripAdvisor). Similarly, some well-known app firms, such as Instagram and Flickr, that became global digital players as independent companies, have subsequently been absorbed by major digital groups (Facebook and Yahoo, respectively). Occasionally, subsidiaries of listed digital parents

Annex table IV.A.1.

## Definition of perimeter

Category	Subcategory	Description of the scope	Caveats/points of attention	
Digital MNEs	Internet platforms	<ul style="list-style-type: none"><li>• Search engines</li><li>• Social networks</li><li>• Other platforms</li></ul>	<ul style="list-style-type: none"><li>• Companies providing digital services through internet and cloud-based platforms, search engines and social networks.</li><li>• Includes sharing economy platforms (e.g. transaction platforms (Ebay) and open-source platforms (Red Hat)).</li></ul>	<ul style="list-style-type: none"><li>• Only company-wide platforms such as Alphabet (Google) or Facebook. Internet platforms provided by digital and IT MNEs as part of a broader digital offer (for example, iTunes of Apple or Audible of Amazon) not captured in this category.</li></ul>
	Digital solutions	<ul style="list-style-type: none"><li>• Electronic payments</li><li>• Other digital solutions</li></ul>	<ul style="list-style-type: none"><li>• Includes a variety of players with core activities based on or strictly linked to internet technologies.</li><li>• Providers of electronic and digital payments, cloud hosting and computing, web hosting and e-mail services, digital solutions for business management and for financial applications (fintech).</li></ul>	<ul style="list-style-type: none"><li>• Miscellaneous category, “blurry” perimeter. Examples of (potentially relevant) business not included: cybersecurity companies (classified as software providers under ICT MNEs), credit card issuers (considered predominantly financial firms).</li></ul>
	E-commerce	<ul style="list-style-type: none"><li>• Internet retailers</li><li>• Other e-commerce</li></ul>	<ul style="list-style-type: none"><li>• Specialized and non-specialized online stores and online travel and booking agencies.</li><li>• Includes agencies specialized in online marketing and advertising.</li></ul>	<ul style="list-style-type: none"><li>• Only full online and online-born commerce. E-commerce channel of traditional business and multichannel retailers not captured in this category (even when online segment is fast growing and/or prominent).</li></ul>
	Digital content	<ul style="list-style-type: none"><li>• Digital media</li><li>• Games</li><li>• Info and data</li></ul>	<ul style="list-style-type: none"><li>• Producers and providers of digital content – media (e.g. music, video, e-books, online magazines) and gaming (e.g. “classic” video games, online games, mobile games, multiplayer interactive games).</li><li>• Production relying on digital formats or files; delivery through both traditional channels (e.g. cable TV for digital media) and online channels (e.g. internet TV and OTT). Online channel growing fast but relative share depends on the product (higher for music and games, lower for video and books).</li><li>• Database-related products and services: big data providers, marketing and customer intelligence, and providers of economic, business and credit information.</li></ul>	<ul style="list-style-type: none"><li>• Borderline category with elements of digital and traditional business:<ul style="list-style-type: none"><li>▶ Companies not digitally born (with exceptions such as Netflix), predating the digital revolution – but turning content from other formats into fully digital.</li><li>▶ Part of business delivered through channels other than the internet, but internet channel fast growing and expected to be leading in the near future.</li></ul></li></ul>
ICT MNEs	IT	<ul style="list-style-type: none"><li>• Devices and components</li><li>• Software and services</li></ul>	<ul style="list-style-type: none"><li>• Manufacturers of ICT hardware (computer brands) but also components (e.g. semiconductor industry).</li><li>• Developers of software; providers of assistance and IT consultancy. Major software houses, turning from a physical delivery model (with physically installed applications) to remote service applications delivered on demand. Category bordering “Digital solutions”.</li></ul>	<ul style="list-style-type: none"><li>• Very broad category; wide range of players with different exposures to digital economy, from very large for leading computer brands to relatively limited for component producers.</li><li>• IT software MNEs increasingly becoming digital MNEs while turning from physical delivery model to cloud-based (e.g. Software as a Service or Platform as a Service).</li></ul>
	Telecom		<ul style="list-style-type: none"><li>• Owners of the telecommunication infrastructure on which internet data is carried. Increasingly active also as providers of internet services and OTT contents.</li></ul>	<ul style="list-style-type: none"><li>• Part of the business of telecom players best suited to the digital categories (e.g. platforms or digital solutions) but basic connectivity still the primary source of revenues.</li></ul>

Source: © UNCTAD

may be listed on their own; this is the case of the platform LinkedIn and its parent Microsoft. In these exceptional situations, where relevant, both parent and subsidiary are included in the top 100 MNEs.

- iii. Companies that provide relevant information.* The analysis of the international footprint of digital MNEs requires information on the geographic distribution of sales (or operating revenues) and assets. This type of information is not part of required financial reporting in all jurisdictions. The selection employed here excludes companies that do not report any information on foreign sales or foreign assets (companies reporting one of the two are not excluded a priori). Unlisted companies usually do not satisfy these minimal reporting requirements. Uber, Spotify, Airbnb and Snap (Snapchat) are all examples of unlisted MNEs that do not report any information on the geographic distribution of operations and on their global ownership structure. Even among listed companies geographic information may not be available, depending on reporting standards in the home country. For United States companies – the majority of MNEs in the sample – geographic information is mandatory (or, alternatively, companies must declare that their foreign business is not relevant); however, for other jurisdictions, particularly in developing countries, reporting standards often do not require this information.

### **Analytical steps**

Operationally the construction of the firm-level databases of top digital and ICT MNEs followed three main steps.

- i. Extraction of the initial sample of companies.* The initial pool of companies extracted from the ORBIS Bureau Van Dijk database includes some 20,000 firms with annual operating revenues above \$1 billion (date of extraction: between December 2016 and February 2017). This initial pool was then narrowed down to 3,000 companies, excluding companies that are not publicly listed and companies that operate in industries with limited digital exposure, namely in the primary sector, in the manufacturing sector with the exception of computer-related manufacturing, in utilities and in construction.
- ii. Selection of the 100 largest digital MNEs and 100 largest ICT MNEs.* The selection procedure was differentiated between digital MNEs and ICT MNEs.
- Digital MNEs. The standard industry classifications, such as NACE or NAICS, that are reported in company databases are not sufficient for the identification of digital firms. Digital firms are classified together with non-digital firms on the basis of what they produce and sell, independent of the level of digitalization. Examples are Amazon (classified as “Retail sale of books in specialized stores” according to its NACE core code), Netflix (“Renting of video tapes and disks”) and Expedia (“Travel agency activities”). The mix of digital and traditional MNEs in sectoral classification makes the identification of digital MNEs in a broader universe challenging, and unfeasible without significant manual effort. Such effort entails one-by-one screening of the main activity of all (candidate) companies in the initial sample. Further checks on the geographic segments and ownership structures may also be needed to confirm MNE status.
  - ICT MNEs. The scope of ICT MNEs (IT hardware and software, and telecommunication) is more easily matched with commonly used industry classifications. Broadly speaking the NACE categories (two-digit) “Telecommunication”, “Manufacture of computer and electronic components”, “Computer programming” and “Information services” reflect the perimeter of ICT MNEs and provide a limited and manageable set of candidate companies for the top 100 selection.

iii. *Cross-validation using other lists.* Although there are no other comprehensive lists of digital and ICT MNEs, scattered information on relevant digital and ICT players can be found in different published lists, which can be either generic or dedicated lists of such players.

- *Generic lists* based on company size, such as the Forbes 500, Fortune 2000, and S&P 500, include relevant firms that are broadly classified in the ICT area. This group of firms is not tailored to the analysis of digital companies but is rather a subset of a broader selection. Some relevant digital areas, such as cloud services and e-commerce, may be underrepresented. Especially when the selection criteria are based on size, it is critical to make separate lists for digital MNEs and ICT MNEs to ensure sufficient representation of the former, which usually are smaller. To illustrate the point, of 39 companies that feature both in UNCTAD's selection and in the Forbes 500, only 4 are digital MNEs and 35 are ICT MNEs.
- *Dedicated lists of ICT and digital firms* are published in different contexts and are usually market-specific. They do not address the broad digital industry, but rather provide a picture of the competitive landscape of specific market segments, such as platforms, social network, cloud services and e-commerce. Often the selection is based on segment-specific criteria (e.g. "the most innovative companies in cloud computing" or "the fastest growing e-commerce firms"). More generally, their scope is too narrow to enable comprehensively mapping and describing the variety of digital and ICT players, as required for this analysis.

Despite their limitations, these lists provide a useful external benchmark. UNCTAD's selection has been cross-validated against the following lists: Forbes 500, Fortune 2000 and S&P500 among the generic lists; UNCTAD Information Economy Reports (companies reported in several editions) and reports by consulting firms, such as PwC Global 100 Software Leaders, among the dedicated ICT/digital ones.

## 2. International footprint analysis

In general, there are two types of data that can be used for firm-level analysis of MNE international operations:

- a. Unconsolidated information on foreign affiliates operations
- b. Consolidated information on the MNE geographic segments (typically on assets and sales)

The unconsolidated data (a) are useful for analyzing the ownership structure of MNEs, for which information about the location of affiliates and ownership links to the parent is usually available (for fully fledged analysis of MNE ownership structures using firm-level data, see for example *World Investment Report 2016* as well as the analysis in table IV.1 of *World Investment Report 2017*). When the focus of the analysis is on financials, the unconsolidated approach is less attractive because subsidiaries of multinational groups usually do not publish separate financial reporting. For this type of analysis, consolidated data (b) are thus more informative. In most jurisdictions, parent companies, especially if publicly listed, have the obligation to disclose a minimal set of financial information on geographic segments, including the geographic distribution of assets and sales.

This study mainly uses consolidated geographic information reported by publicly listed MNEs to analyze the international footprint of digital and ICT MNEs. The most important metrics used to analyze the international footprint of MNEs are the following.

- i. Share of foreign assets in total assets
- ii. Share of foreign sales in total sales
- iii. Ratio between the share of foreign sales and the share of foreign assets

As a general rule, the term “foreign” applies to all economies other than the country of incorporation of the parent company. In exceptional cases, when there is a clear disconnect between the country of the legal headquarters (where the parent is formally incorporated) and that of the operational centre (where the coordination of operations takes place), the latter has been included in the domestic component.

The elaboration of the metrics (i)–(iii) is not always straightforward; the key issues are discussed below.

### (i) Share of foreign assets

The derivation of foreign assets (and their share relative to total assets) can be complex. The main challenge is related to the fact that companies provide a geographic breakdown of assets using different baselines. Only a minority of MNEs in the sample provide the geographic breakdown of total assets. The majority provides the breakdown of long-lived assets, and a sizeable share of companies limits the geographic segmentation to property, plant and equipment (PP&E). This issue has a relevant impact for digital MNEs for which there may be significant differences in the value of PP&E, long-lived assets and total assets (see also figure IV.3 in the Report on the asset composition of tech MNEs). To illustrate the point, in the case of Netflix, PP&E – the component on which the geographic breakdown is given – is a very small share of total assets (less than 2 per cent). It follows that the reported foreign component, at 8 per cent of total PP&E, is almost negligible compared with Netflix’s total assets.

Among the selected top 100 digital MNEs, such extreme cases – for which the baseline used for the geographic segmentation is less than 10 per cent of total assets – are about 20 per cent of the total; for more than 40 per cent of digital MNEs, the baseline of the

geographic segmentation covers at least half of total assets. For the group of ICT MNEs, the statistics are similar.

From a conceptual perspective this issue has limited implications. The focus of the analysis in the Report is on tangible fixed assets, the traditional type of FDI, and on how digitalization is changing the (physical) international footprint of MNEs. Even in the least informative cases this portion is covered. In the most frequent case – when the baseline is long-lived assets – intangible fixed assets are also included in the geographic distribution, leaving out only current assets, which are less relevant in this context. Moreover, when only PP&E is segmented, it is likely that the bulk of the remaining component of the fixed assets (mainly the intangible part; in the Netflix case, “Non-current content assets”) is retained at home or located in offshore financial centres. This consideration further strengthens the argument supporting a light international production footprint of digital MNEs.

Nevertheless, from a practical perspective, different baselines for the shares of foreign assets imply that there is no immediate way to collect foreign asset figures that are fully comparable across companies. This is an issue especially for the calculation of aggregate shares for relevant categories of MNEs. To address this issue, the key results for the analysis have been calculated using both a “weighted approach” and an “unweighted approach”.

In the weighted approach, the share of foreign assets reported at the firm level is applied to the firm’s total assets to provide a common baseline to use in weighting the shares across different firms and different baselines for geographic segmentation. This approach assumes that whatever the individual baseline (either PP&E or long-lived assets), the foreign share can be extended to the total assets. The unweighted approach instead uses the foreign shares reported by each firm (although on different baselines) and takes their median. This approach does not need to resort to assumptions on the geographic breakdown of total assets; it just computes descriptive summary statistics based on the information available at the firm-level.

## **(ii) Share of foreign sales**

The elaboration of the share of foreign sales (or operating revenues) is more straightforward, as most publicly listed companies explicitly report the geographic breakdown of sales. However, it is important to note that some companies allocate sales based on their operations, others on the location of their customers. Therefore, for the first group, foreign sales coincide with the sales of foreign affiliates, while for the second group they also include exports. In the sample of top digital MNEs, about 30 per cent of companies report geographic sales based on operations, 40 per cent report based on customers’ location and the remaining 30 per cent does not specify this information. Despite the differences, both reporting approaches provide an indication of the foreign commercial presence of individual MNEs that can be used in the analysis of their international footprints.

## **(iii) Ratio between the shares of foreign sales and foreign assets (foreign asset lightness ratio)**

This indicator is a measure of the relative weight of the two main foreign components, assets and sales. It is low (between 0 and 1) when the share of foreign assets is higher than the share of foreign sales; it equals 1 when the two shares are the same; it is high (above 1) when the share of foreign asset is lower than the share of foreign sales (“light” foreign assets). At the aggregate level, this indicator is computed using a weighted approach and an unweighted approach. The weighted indicator accounts for the size of the companies, in terms of total sales and total assets. The unweighted approach assigns the same weight to each company; it is not dependent on a few large companies and it is less exposed to the problem of different baselines in firms’ reporting of foreign assets.



### 3. UNCTAD's rankings of top digital and top ICT MNEs

#### Top 100 digital MNEs, by sales or operating revenues (2015)

	Classification first level	Company name	Classification second level	Total sales (\$ million)	Total assets (\$ million)	Share of foreign sales (%)	Share of foreign assets (%)	Ratio between share of foreign sales and share of foreign assets	
1	Internet platforms	Alphabet	Search engines	74,989	147,461	54	24	2.25	
2		Facebook	Social networks	17,928	49,407	53	21	2.51	
3		eBay	Other platforms	8,592	17,755	58	7	8.89	
4		Yahoo	Search engines	4,968	45,204	20	6	3.12	
5		IAC/Interactive	Social networks	3,231	5,189	26	8	3.49	
6		Groupon	Other platforms	3,120	1,796	34	41	0.84	
7		LinkedIn	Social networks	2,991	7,011	38	18	2.15	
8		Naver	Search engines	2,773	3,741	33	NA	NA	
9		Twitter	Social networks	2,218	6,442	35	7	4.93	
10		Red Hat	Other platforms	2,052	4,155	34	30	1.13	
11		Match Group	Social networks	1,020	1,909	32	41	0.77	
Internet platforms total				123,882	290,071	50	19	2.63	
(Internet platforms median – unweighted)						35	19	2.38	
12	Digital solutions	Automatic Data Processing	Other digital solutions	11,668	43,670	15	10	1.50	
13		First Data	Electronic payments	11,451	34,362	14	11	1.36	
14		PayPal	Electronic payments	9,248	28,881	50	7	7.61	
15		Salesforce	Other digital solutions	6,667	12,763	26	11	2.39	
16		VMware	Other digital solutions	6,647	15,746	50	15	3.28	
17		FIS	Other digital solutions	6,595	26,269	41	16	2.48	
18		Worldpay Group	Electronic payments	5,873	6,122	71	NA	NA	
19		NetApp	Other digital solutions	5,546	10,037	45	15	2.99	
20		Insight Enterprises	Other digital solutions	5,373	2,014	32	33	0.96	
21		United Internet	Other digital solutions	4,045	4,222	10	16	0.65	
22		Amdocs	Other digital solutions	3,718	5,331	86	62	1.40	
23		Nasdaq	Other digital solutions	3,403	11,861	29	33	0.89	
24		Citrix Systems	Other digital solutions	3,276	5,468	39	21	1.83	
25		Global Payments	Electronic payments	2,898	10,510	29	20	1.46	
26		Broadridge Financial Solutions	Other digital solutions	2,897	2,880	11	16	0.70	
27		Equinix	Other digital solutions	2,726	10,357	48	50	0.96	
28		Super Micro Computer	Other digital solutions	2,216	1,166	37	24	1.53	
29		Akamai Technologies	Other digital solutions	2,197	4,182	27	43	0.62	
30		Rackspace Hosting	Other digital solutions	2,001	2,014	32	36	0.88	
31		Transcosmos	Other digital solutions	1,993	1,248	13	40	0.34	
32		Cimpress	Other digital solutions	1,788	1,464	NA	79	NA	
33		GoDaddy	Other digital solutions	1,464	3,499	26	0	..	
34		Worldline	Electronic payments	1,336	1,468	65	NA	NA	
35		Workday	Other digital solutions	1,162	2,730	16	NA	NA	
36		VeriSign	Other digital solutions	1,059	2,358	40	3	14.67	
37		ServiceNow	Other digital solutions	1,005	1,807	34	30	1.13	
Digital solutions total				108,253	252,427	32	17	1.90	
(Digital solutions median – unweighted)						32	18	1.43	
38	E-commerce	Amazon	Internet retailers	107,006	65,444	36	32	1.13	
39		Alibaba Group	Internet retailers	15,639	56,353	8	NA	NA	
40		Priceline Group	Other e-commerce	9,224	17,421	80	17	4.77	
41		Expedia	Other e-commerce	6,672	15,486	44	11	3.95	
42		Naspers	Internet retailers	5,930	16,723	54	NA	NA	
43		Rakuten	Internet retailers	5,922	35,435	20	67	0.29	
44		Amadeus IT Group	Other e-commerce	4,260	7,625	96	96	1.00	
45		Cnova	Internet retailers	3,804	1,853	50	75	0.66	
46		Zalando	Internet retailers	3,221	2,304	47	NA	NA	
47		Bechtle	Internet retailers	3,076	1,252	31	30	1.04	
48		Sabre	Internet retailers	2,961	5,394	60	4	14.23	
49		Travelport Worldwide	Other e-commerce	2,221	2,929	66	50	1.33	
50		Asos	Internet retailers	1,907	854	57	0	..	
51		Systemax	Internet retailers	1,855	710	64	53	1.20	
52		Liberty TripAdvisor	Other e-commerce	1,565	7,285	48	17	2.91	
53		Criteo	Internet retailers	1,323	842	91	51	1.77	
54		Copart	Internet retailers	1,268	1,650	20	24	0.82	
55		Yoox Net-a-Porter Group	Internet retailers	1,004	3,053	89	NA	NA	
E-commerce total				178,857	242,613	42	38	1.11	
(E-commerce median – unweighted)						53	31	1.27	

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## Top 100 digital MNEs, by sales or operating revenues (2015)

	Classification first level	Company name	Classification second level	Total sales (\$ million)	Total assets (\$ million)	Share of foreign sales (%)	Share of foreign assets (%)	Ratio between share of foreign sales and share of foreign assets	
56	Digital content	Comcast	Digital media	74,510	166,574	8	NA	NA	
57		Time Warner	Digital media	28,118	63,848	27	NA	NA	
58		21st Century Fox	Digital media	27,326	48,193	29	10	2.98	
59		Liberty Global	Digital media	18,280	67,867	61	63	0.97	
60		Sky	Digital media	16,138	23,483	30	7	4.55	
61		Tencent Holdings	Games	15,846	47,265	6	23	0.28	
62		CBS	Digital media	13,886	23,765	14	2	7.17	
63		Viacom	Digital media	12,488	22,508	25	7	3.47	
64		Thomson Reuters	Info & data	12,209	29,095	40	40	1.00	
65		Liberty Interactive	Digital media	9,989	21,180	26	44	0.58	
66		News Corp	Digital media	8,292	15,483	53	62	0.85	
67		Netflix	Digital media	6,780	10,203	29	8	3.60	
68		RTL Group	Digital media	6,564	8,924	63	71	0.90	
69		Alliance Data Systems	Info & data	6,440	22,350	22	16	1.34	
70		Discovery Communications	Digital media	6,394	15,864	49	48	1.01	
71		IHeartMedia	Digital media	6,242	13,673	26	28	0.91	
72		Nielsen Holdings	Info & data	6,172	15,303	38	16	2.33	
73		S&P Global	Info & data	5,313	8,183	40	11	3.53	
74		Grupo Televisa	Digital media	5,117	16,359	14	4	3.33	
75		Activision Blizzard	Games	4,664	15,246	48	27	1.79	
76		Wolters Kluwer	Info & data	4,581	8,817	96	72	1.34	
77		Electronic Arts	Games	4,396	7,050	57	22	2.61	
78		Experian	Info & data	4,355	7,407	79	85	0.92	
79		Mediaset	Digital media	3,740	7,726	28	18	1.53	
80		Axel Springer	Digital media	3,587	7,082	48	69	0.69	
81		ProSiebenSat.1Media	Digital media	3,550	5,789	16	17	0.93	
82		Moody's	Info & data	3,485	5,103	42	58	0.72	
83		Equifax	Info & data	2,664	4,509	23	18	1.32	
84		Graham Holdings	Digital media	2,586	4,353	26	18	1.42	
85		AMC Networks	Digital media	2,581	4,265	18	43	0.42	
86		Teradata	Info & data	2,530	2,527	44	17	2.60	
87		Konami	Games	2,222	2,918	33	11	3.09	
88		Gartner	Info & data	2,163	2,175	38	22	1.69	
89		Verisk Analytics	Info & data	2,068	5,594	NA	56	NA	
90		Modern Times Group	Digital media	1,921	1,954	71	73	0.97	
91		Sanoma	Digital media	1,869	3,010	63	89	0.71	
92		GfK	Info & data	1,680	2,006	75	62	1.22	
93		Dun & Bradstreet	Info & data	1,637	2,267	19	35	0.54	
94		Ubisoft	Games	1,587	2,301	92	NA	NA	
95		Nexon	Games	1,579	3,532	89	64	1.38	
96		TransUnion	Info & data	1,507	4,443	18	17	1.06	
97		Take Two Interactive Software	Games	1,414	2,590	47	NA	NA	
98		Entertainment One	Digital media	1,156	2,366	76	71	1.07	
99		Verint Systems	Info & data	1,130	2,356	62	58	1.07	
100		FactSet Research Systems	Info & data	1,127	1,019	33	16	2.00	
Digital content total				351,883	758,522	36	32	1.14	
(Digital content median – unweighted)						38	25	1.27	
Total digital				762,875	1,543,633	40	27	1.49	
(Digital median – unweighted)						37	23	1.35	

Source: ©UNCTAD, based on UNCTAD's FDI/MNE database, company reports and data from Orbis BvD and Thomson ONE.

Note: Companies are ranked by sales within each category ("classification first level"). Allocation of companies to categories and subcategories ("classification second level") is based on principal activity.

## Top 100 ICT MNEs, by sales or operating revenues (2015)

	Classification first level	Company name	Classification second level	Total sales (\$ million)	Total assets (\$ million)	Share of foreign sales (%)	Share of foreign assets (%)	Ratio between share of foreign sales and share of foreign assets
1	IT devices & components	Apple	IT devices	215,639	321,686	65	39	1.65
2		Samsung Electronics	IT devices	171,126	206,550	90	31	2.88
3		Hon Hai Precision Industry	Components	135,996	70,038	99	91	1.09
4		International Business Machines	IT devices	81,741	110,495	63	54	1.15
5		Sony	IT devices	71,968	148,037	71	24	3.00
6		Intel	IT devices	55,355	101,459	80	29	2.75
7		Dell Technologies	IT devices	50,911	45,122	52	29	1.81
8		Toshiba	Components	50,165	48,083	59	36	1.67
9		Cisco Systems	IT devices	49,247	121,652	47	20	2.40
10		HP	IT devices	48,238	29,010	63	58	1.09
11		LG Electronics	IT devices	48,195	30,971	75	21	3.59
12		Legend Holdings	IT devices	47,728	47,176	68	45	1.53
13		Lenovo Group	IT devices	44,912	24,933	72	65	1.11
14		Fujitsu	IT devices	42,078	28,645	40	20	2.00
15		Pegatron	IT devices	36,826	14,445	85	73	1.16
16		Quanta Computer	IT devices	30,562	16,129	100	83	1.21
17		Telefonaktiebolaget Lm Ericsson	IT devices	29,253	33,689	98	34	2.93
18		Compal Electronics	IT devices	25,709	9,950	100	65	1.53
19		Taiwan Semiconductor Manufacturing	Components	25,593	50,292	89	3	31.30
20		Flextronics	Components	24,419	12,385	65	65	1.00
21		Sharp	IT devices	21,856	13,945	70	20	3.43
22		Wistron	Components	18,911	8,811	37	81	0.46
23		Jabil Circuit	Components	18,353	10,323	91	76	1.19
24		SK Hynix	Components	16,032	25,312	94	19	5.01
25		ZTE	Components	15,433	19,192	47	17	2.69
26		Nokia	IT devices	14,778	22,782	91	42	2.16
27		Asustek Computer	IT devices	14,331	10,122	86	46	1.89
28		Kyocera	Components	13,137	27,480	59	31	1.91
29		Texas Instruments	Components	13,000	16,230	88	47	1.85
30		Western Digital	IT devices	12,994	32,862	72	60	1.20
31		Micron Technology	Components	12,399	27,540	84	74	1.15
32		Inventec	IT devices	11,999	5,332	94	62	1.52
33		Seagate Technology	IT devices	11,160	8,252	70	64	1.09
34		China Greatwall Computer Shenzhen	Components	11,129	6,078	60	NA	NA
35		TPV Technology	Components	11,062	5,932	61	47	1.30
36		Innolux	Components	11,048	11,756	72	16	4.38
37		AU Optronics	Components	10,990	12,176	67	27	2.44
38		Murata Manufacturing	Components	10,751	13,476	93	30	3.12
39		TDK	Components	10,230	12,879	92	77	1.20
40		Seiko Epson	Components	9,700	8,358	76	38	1.99
41		Japan Display	Components	8,782	7,226	89	NA	NA
42		Advanced Semiconductor Engineering	Components	8,596	11,083	88	40	2.21
43		Acer	IT devices	8,003	5,211	92	78	1.18
44		STMicroelectronics	Components	6,897	8,195	76	83	0.91
45		Alps Electric	Components	6,872	4,997	81	40	2.05
46		Asml Holding	Components	6,845	15,802	100	24	4.14
47		Lite-On Technology	Components	6,582	6,361	30	3	9.76
48		Mediatek	Components	6,471	10,657	95	16	6.00
49		Renesas Electronics	Components	6,155	7,541	56	17	3.31
50		Nxp Semiconductors	Components	6,101	26,354	97	94	1.03
51		Tokyo Electron	Components	5,895	7,044	82	22	3.79
52		Nvidia	Components	5,010	7,370	87	22	3.90
IT devices & components total				1,637,164	1,887,427	75	39	1.91
(IT devices & components median – unweighted)						78	40	1.90

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## Top 100 ICT MNEs, by sales or operating revenues (2015)

	Classification first level	Company name	Classification second level	Total sales (\$ million)	Total assets (\$ million)	Share of foreign sales (%)	Share of foreign assets (%)	Ratio between share of foreign sales and share of foreign assets	
53	IT software & services	Microsoft	IT software & services	85,320	193,694	52	43	1.22	
54		Hewlett Packard Enterprise	IT software & services	50,123	79,679	61	51	1.21	
55		Oracle	IT software & services	37,047	112,180	53	33	1.63	
56		Accenture	IT software & services	34,798	20,609	99	96	1.03	
57		NEC	IT software & services	25,048	22,138	21	5	3.95	
58		Qualcomm	IT software & services	23,554	52,359	98	18	5.61	
59		SAP	IT software & services	22,637	45,061	87	92	0.94	
60		Tata Consultancy Services	IT software & services	16,379	13,475	93	80	1.16	
61		NTT Data	IT software & services	14,338	16,517	31	10	3.12	
62		Capgemini	IT software & services	12,972	17,671	79	79	1.01	
63		Cognizant Technology Solutions	IT software & services	12,416	13,061	21	81	0.26	
64		Atos	IT software & services	11,633	11,628	84	79	1.07	
65		Infosys	IT software & services	9,418	11,371	97	NA	NA	
66		CGI Group	IT software & services	8,145	8,915	86	76	1.13	
67		Wipro	IT software & services	7,726	10,665	90	NA	NA	
68		Harris	IT software & services	7,467	11,996	6	4	1.51	
69		Computer Sciences Corporation	IT software & services	7,106	7,736	57	57	1.00	
70		Samsung SDS	IT software & services	6,698	5,400	47	4	11.07	
71		Datatec	IT software & services	6,455	3,383	92	94	0.98	
72		Adobe Systems	IT software & services	5,854	12,707	47	21	2.23	
73		HCL Technologies	IT software & services	4,640	5,931	97	52	1.85	
IT software & services total				409,774	676,177	63	46	1.38	
(IT software & services median – unweighted)						61	52	1.21	
74	Telecom	AT&T	Telecom	146,801	402,672	4	5	0.94	
75		Nippon Telegraph and Telephone	Telecom	102,468	186,770	16	32	0.52	
76		Softbank Group	Telecom	81,271	183,851	55	66	0.83	
77		Deutsche Telekom	Telecom	75,368	156,686	64	64	1.00	
78		Vodafone Group	Telecom	59,013	192,587	85	90	0.94	
79		America Movil	Telecom	51,970	75,349	67	46	1.44	
80		Telefonica	Telecom	51,407	133,882	72	77	0.94	
81		Orange	Telecom	43,805	99,540	54	57	0.96	
82		BT Group	Telecom	27,426	61,345	22	10	2.19	
83		Telecom Italia	Telecom	21,467	77,550	25	12	2.08	
84		Telstra	Telecom	19,242	32,144	5	8	0.63	
85		Altice	Telecom	15,841	70,545	98	97	1.01	
86		Bharti Airtel	Telecom	14,553	33,900	7	25	0.27	
87		Telenor	Telecom	14,549	23,259	77	76	1.01	
88		Emirates Telecommunication Group	Telecom	14,215	34,926	43	60	0.72	
89		Saudi Telecom Company	Telecom	13,507	25,776	10	5	1.92	
90		Swisscom	Telecom	11,771	21,317	16	18	0.93	
91		Vivendi	Telecom	11,717	38,046	59	62	0.94	
92		Telia Company	Telecom	10,268	30,094	58	71	0.80	
93		Vimpelcom	Telecom	9,625	33,854	53	60	0.90	
94		MTN Group	Telecom	9,460	20,191	75	66	1.14	
95		Ooredoo	Telecom	8,835	25,866	77	75	1.02	
96		Level 3 Communications	Telecom	8,229	24,017	19	17	1.10	
97		Millicom	Telecom	6,730	10,363	100	100	1.00	
98		Mobile Telesystems	Telecom	5,917	8,965	10	16	0.63	
99		Vodacom Group	Telecom	5,436	5,342	23	34	0.67	
100		PCCW	Telecom	5,072	9,646	17	16	1.07	
Telecom total				845,964	2,018,482	42	46	0.92	
(Telecom median – unweighted)						53	57	0.94	
Total ICT				2,892,902	4,582,086	63	43	1.48	
(ICT median – unweighted)						71	44	1.21	

Source: ©UNCTAD, based on UNCTAD's FDI/MNE database, company reports and data from Orbis BvD and Thomson ONE.

Note: Companies are ranked by sales within each category ("classification first level"). Allocation of companies to categories and subcategories ("classification second level") is based on principal activity.