UNCTAD

UNCTAD B2C E-COMMERCE INDEX 2018 FOCUS ON AFRICA

UNCTAD Technical Notes on ICT for Development N°12

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UNCTAD B2C E-commerce Index 2018
Focus on Africa

Improved coverage in 2018 edition

The 2018 UNCTAD B2C E-commerce Index, which measures an economy's preparedness to support online shopping, has expanded its coverage to include 151 economies, up seven from the 2017 edition. The index consists of four indicators that are highly related to online shopping and for which there is wide country coverage (box 1).[1] The extent to which people shop online in a country is highly correlated with the value of the index, with an adjusted R squared value of 0.8 (Figure 1).

Box 1. UNCTAD B2C E-commerce index methodology

The index is calculated as the average of four indicators (i.e., each indicator carries the same weight) using data for 2017 or the latest available.

- Account ownership at a financial institution or with a mobile-money-service provider (% of population ages 15+) (Source: World Bank)
- Individuals using the Internet (% of population) (Source: International Telecommunication Union, ITU)
- Postal Reliability Index (Source: Universal Postal Union, UPU)
- Secure Internet servers (per 1 million people) (Source: Netcraft)

Account ownership data are sourced from the World Bank Findex survey, which is carried out every three years, with latest survey in 2017. Therefore, 2016 data have been estimated based on the Compound Annual Growth Rate (CAGR) between 2014-17. In cases where there was no survey in 2014 but there was one in 2011 and 2017, intervening years are estimated based on the 2011-17 CAGR. Older data were used as a basis for the estimates when only surveys conducted prior to 2014 or 2011 were available.

Secure Internet servers per 1 million people is normalized with this formula: Log (secure server penetration)-Log (maximum value) / Log (maximum value) / Log (minimum value) *100. As noted there was a significant rise in secure servers for some countries in 2017 and revisions in earlier years.

UPU postal reliability data is available for 2015-17. If there are no data for a country in 2017, then the previous year's data are used.

At the time of this report, 2017 Internet use data from the ITU were available for less than half of the countries in the index. In some cases, surveys have been used to update the data. If no survey was available, then 2016 data is used.

Country ranks for 2016 are shown as in the previous version of the index. However, given revisions to the data, the increase in score is based on the revised value for 2016.
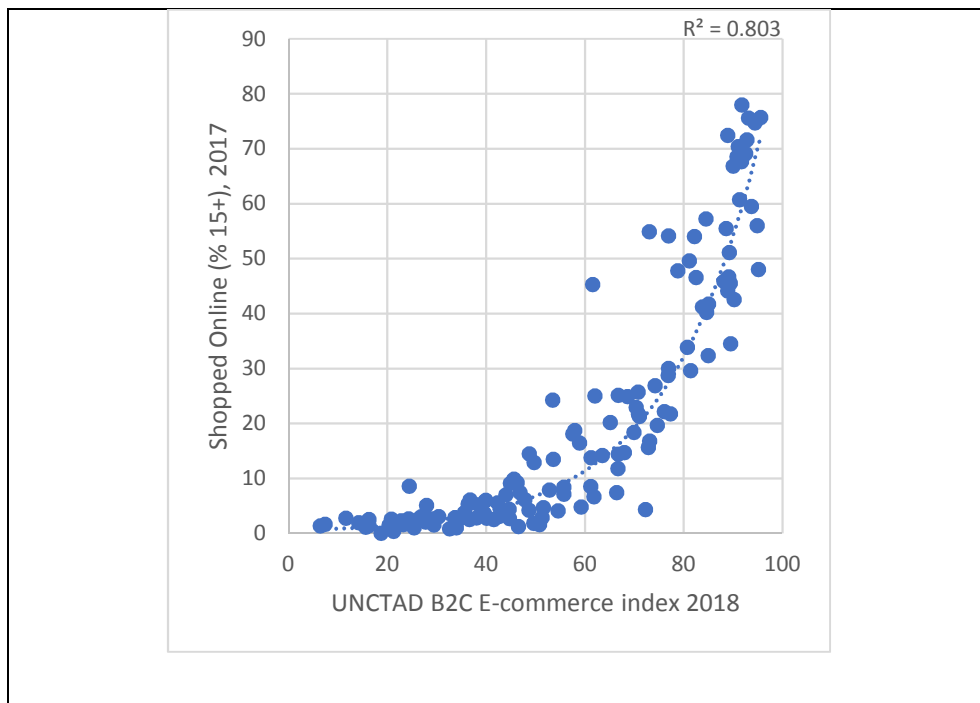
Source: UNCTAD.

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[1] For more information on the methodology see: UNCTAD. 2017. "UNCTAD B2C E-commerce Index 2017." *UNCTAD Technical Notes on ICT for Development*, No. 9.

The release of new account ownership data from the World Bank's 2017 Global Findex survey[2] has increased the number of countries included and allows for an estimation of account data for the intervening years since the last survey in 2014. Furthermore, the 2017 FINDEX survey includes for the first time data on the proportion of the age 15+ population which has used the Internet to buy something online. This allows the index to be tested for robustness using a harmonized data set of online shoppers. There were significant revisions to data on the availability of secure servers. According to Netcraft, the company that carries out the survey, there was a sharp rise for some countries due to drives from browser vendors for increased security and the availability of free, easy-to-use certificates. Postal reliability scores fluctuated significantly in 2017 as postal operators adjusted to growing parcel volumes from increased online shopping.

Figure 1. Relationship between UNCTAD B2C E-commerce Index values and online shopping

Source: UNCTAD.

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[2] https://globalfindex.worldbank.org.

The Netherlands ascends to the top of the index

Eight of the top ten countries on the index are in Europe (Table 1). Index values are extremely close, with a range of just four points between first and tenth rank. For the first time, the Netherlands is the highest ranked country in the index, up three positions from the last year. It replaced Luxembourg, which dropped out of the top ten as a result of a sharp drop in its postal reliability score. The Netherlands has high values for most indicators (Box 1), particularly secure servers where it is top ranked among all countries included in the index. Secure servers is used as a proxy for e-commerce shops, and the Netherlands had over 40'000 pure play online retailers in 2016, the highest figure in the European Union (Figure 2, left).[3] The country has the second highest proportion of online shoppers in the world (76% of the population aged 15 and older).

Singapore and Switzerland are in second and third place. Singapore has surged 16 positions from the last edition, with increased values across all indicators. It now ranks among the top countries in accounts, secure server penetration and postal reliability. E-commerce giant Alibaba is an investor in Singapore Post, which in fiscal year 2018 reported that over half its revenue was e-commerce related (Figure 2, right).[4] Internet use is, however, below average and the country's level of online shopping is lower than what it should be given its high index rank. This may partly reflect the fact that the main reason Internet users do not shop online in Singapore is they prefer to shop in person, a factor not measured in the index.[5] Switzerland rates favorably on all indicators and according to its national postal operator: "Switzerland has all the ingredients it needs to be one of the best e-commerce markets in the world."[6] The Confederation had the second highest average online spend among European countries in 2016 (Figure 3, left).

The United Kingdom has climbed to fourth position. Along with the Netherlands and Switzerland, the United Kingdom has all of its index indicator values at 90 or above. Such a conducive environment for online shopping is reflected in the country having the largest B2C revenues in Europe and the world's highest proportion of B2C revenues to GDP (Figure 3, right).

Norway and Sweden, 5th and 8th respectively, are among four Nordic nations included in the top ten. They have among the world's highest values for all of the indicators except secure server penetration. High levels of Internet access, payment methods and reliable postal delivery are driving online shopping to among the highest levels in the world (3rd and 6th world ranking in the proportion of population that has bought something online). Iceland, ranked 6th, has near ubiquitous Internet access with 98% of the population online, the highest in the world along with Bahrain and Norway. Its score is brought down by a relatively low level of postal reliability, possibly a reflection of challenging terrain and

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[3] See "Annual detailed enterprise statistics for trade (NACE Rev. 2 G)" on the Eurostat database at: https://ec.europa.eu/eurostat/data/database

[4] Singapore Post. 2018. *Annual Report 2017/18*. https://www.singpost.com/sites/default/files/publications_file/2018/06/Singpost_AR201718.pdf

[5] Infocomm Media Development Authority. 2018. *Annual Survey on Infocomm Usage in Households and by Individuals for 2017*. https://www.imda.gov.sg/industry-development/facts-and-figures/infocomm-usage-households-and-individuals

[6] Asendia. "The secrets of e-commerce success in Switzerland." https://www.asendia.co.uk/application/files/2215/0600/5325/Asendia_secrets_of_ecommerce_success_in_switzerland_whitepaper.pdf

weather conditions in the nation. One alternative is drone delivery which has been launched by Iceland's biggest B2C e-commerce company.[7]

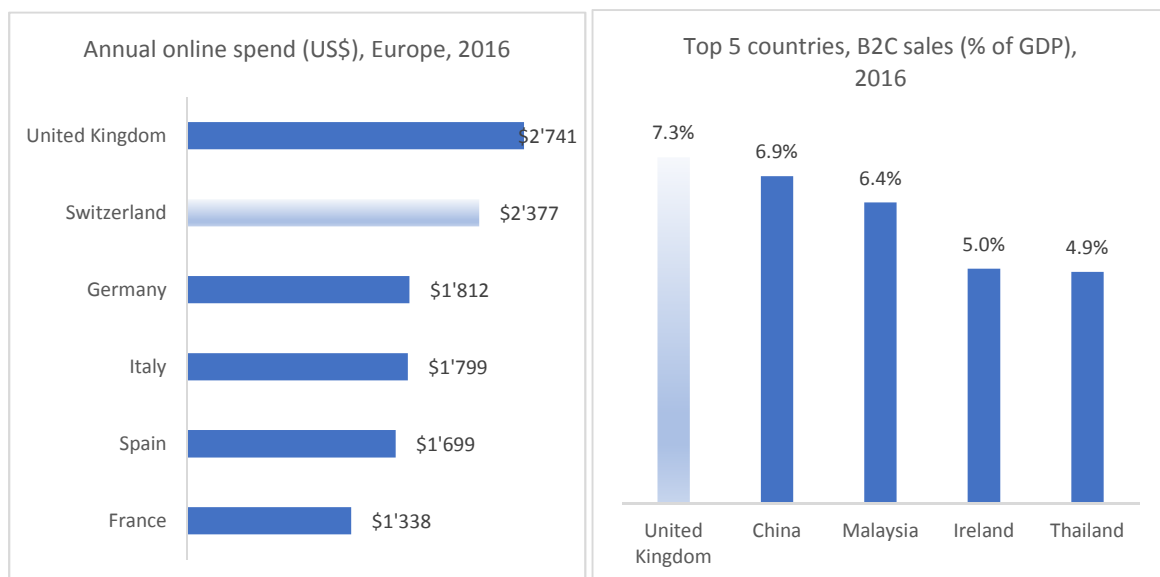**Figure 2. Top ten countries by pureplay web shops per 1 million people, European Union and Singapore Post E-commerce related revenue, FY 2018**

Top ten countries in EU by pureplay web shops per 1 million people, 2016

E-commerce related revenue, Singapore Post, FY2018
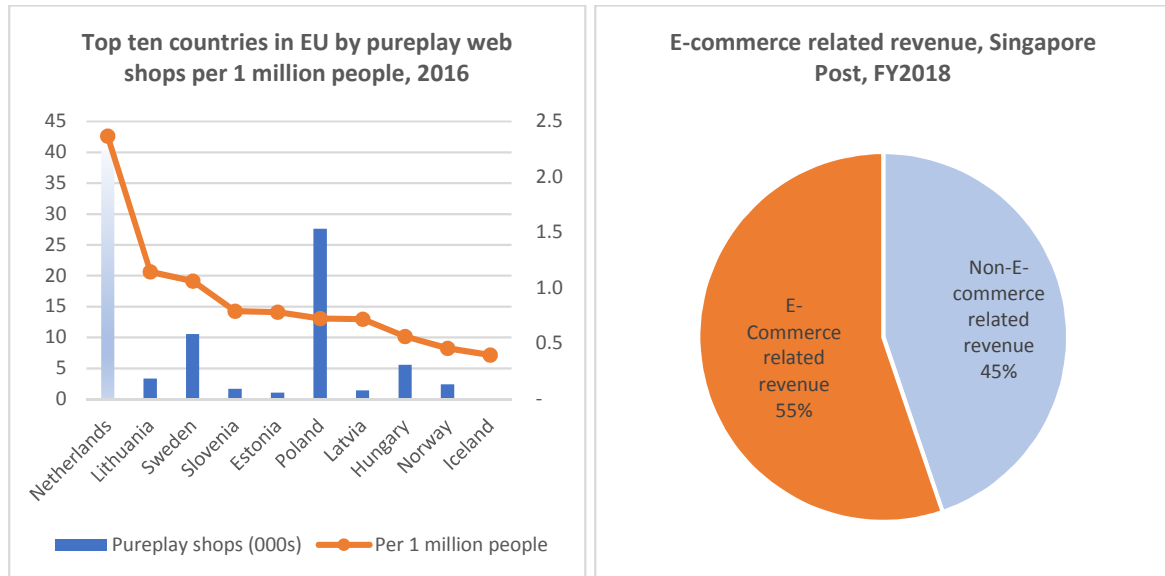
Note: Pureplay web shops are equivalent to ISIC 4.0 4791 Retail sale via mail order houses or via Internet. Singapore e-commerce related revenue relates to cross-border deliveries under its postal segment, warehousing and last-mile delivery under its logistics segment and front-end related revenue under its eCommerce segment.
Source: Eurostat and Singapore Post.

Figure 3. Annual online spend, Europe, 2016 and B2C e-commerce revenue as a % of GDP, Top 5 countries, 2016

Annual online spend (US$), Europe, 2016

United Kingdom	$2'741
Switzerland	$2'377
Germany	$1'812
Italy	$1'799
Spain	$1'699
France	$1'338

Top 5 countries, B2C sales (% of GDP), 2016

United Kingdom 7.3%, China 6.9%, Malaysia 6.4%, Ireland 5.0%, Thailand 4.9%

Source: Asendia (left chart) and United Kingdom Office of National Statistics, China Bureau of Statistics, Malaysia Department of Statistics, Central Bank of Ireland, Electronic Transactions Development Agency of Thailand and World Bank (for exchange rates and GDP).

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[7] Greg Nichols. 2018. "Iceland's answer to Amazon adds drone routes to urban deliveries." *ZDNet*, 7 August. https://www.zdnet.com/article/icelands-answer-to-amazon-adds-drone-routes-to-urban-deliveries/

Ireland is ranked 7th, advancing 12 positions due to notable increases in secure servers and postal reliability. It is judged by UPU to have the second highest postal reliability in the world. Like Singapore, Internet use is relatively low compared to the other top ranked countries and growth has been sluggish, dropping one percentage point in 2017.

New Zealand ranks 9th (the other high-income Pacific nation, Australia, ranks 11th), with high levels of accounts and postal reliability where it ranks 7th in the world. New Zealand Post offers several relevant services to support e-commerce, such as a national *Parcel Collection and Drop Off* network with over 240 handy locations where buyers can pick up packages; *eShip* for printing shipping labels; and *Pick Pack Ship* for sellers wanting to outsource fulfillment, featuring warehousing, packing and shipping.[8]

Denmark completes the top ten. Its score is lowered mainly by a relatively low score on UPU's postal reliability index. On the other hand, Denmark has a high level of secure Internet server density and the highest proportion of online shoppers in the world, two percentage points higher than in the Netherlands.

Table 1. Top 10 economies in the UNCTAD B2C E-commerce Index 2018

2018 Rank	Economy	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalized) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)	Index value change (2016-17 data)	2017 Index rank
1	Netherlands	95	100	100	90	96.1	-0.1	4
2	Singapore	84	98	98	100	95.2	1.8	18
3	Switzerland	94	98	94	94	95.0	-0.8	2
4	United Kingdom	95	96	90	96	94.4	0.6	6
5	Norway	98	100	87	90	93.5	-0.5	3
6	Iceland	98	99	98	78	93.5	0.3	11
7	Ireland	81	95	95	100	92.8	1.5	19
8	Sweden	96	100	86	89	92.8	0.0	7
9	New Zealand	88	99	87	96	92.6	0.5	10
10	Denmark	97	100	96	74	91.8	-1.6	13

Box 2. Mapping the index to reality: the Dutch experience

In an ideal world, more relevant indicators would be used for the construction of a B2C e-commerce index. This could include the penetration of online shops, an indicator reflecting ease of receiving parcel deliveries and a quantitative measure of why people do not shop online. However, this would vastly reduce the number of countries included in the index. The four indicators included in the UNCTAD index have a high correlation to online shopping.

It is useful to map actual developments in the B2C e-commerce ecosystem that reflect the index

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[8] New Zealand Post. 2018. *The Full Download: 2018 New Zealand eCommerce Review*. https://www.nzpost.co.nz/sites/default/files/uploads/shared/the-full-download-2018-nz-ecommerce-report.pdf?utm_source=sfmc&utm_medium=email&utm_content=https%3a%2f%2fwww.nzpost.co.nz%2fsites%2fdefault%2ffiles%2fuploads%2fshared%2fthe-full-download-2018-nz-ecommerce-report.pdf&utm_campaign=Full+Download+Thankyou

indicator values. The Netherlands, top ranked in this year's B2C index, offers a wealth of supplementary statistics illustrating each element of the index and why the country is so highly positioned.

Annual surveys are carried out on Internet use. In 2017, 95% of the population used the Internet, of which 82% shop online.

Virtually every adult in the country has a bank account. This is essential given that more and more smaller shops no longer accept cash and will only take PIN-based debit cards, included with every bank account. Also included with every bank account is iDEAL, an interbank online payment system. Users find it convenient since payment is easy and many online shops provide a QR code that buyers simply have to scan with their mobile banking app. Sellers like it because transaction costs are low and equally banks prefer the system since they do not have to pay fees to international credit card companies. iDEAL accounts for over half of online shopping payments with almost 380 million transactions in 2017, up 34% over 2016.[9]

Postnl, the incumbent postal enterprise, saw its revenues from e-commerce related activities rise by 5 percentage points in 2017 to 38% of its revenue.[10] It also reported a 17% increase in parcel volume for the year. There is scope for improvement, however. The Netherlands ranks only 15th on the 2017 UPU postal reliability index—and late delivery of products ordered online is the top complaint among shoppers.[11]

The country has a high proportion of online shops according to different measures. The number of pure play online retail shops was just over 40'000 in 2016 up 8% over the previous year (2017 not available at the time of this report), the highest in Europe by both number and penetration.[12] The number of webshops[13] was reported as 32'160 in 2016, up 10% over the previous year.[14] According to research from October 2017 (using web crawlers that recognize online stores based on specific features), the Netherlands had over 82'000 online stores – the third highest in Europe.[15]

All this translates into a high level of online shopping, up five percentage points in 2017 to 79% of the population. According to Thuiswinkel, the Dutch Ecommerce Association, online spending rose 23% between 2016 and 2017 to US$25 billion, making the Netherlands the 11th largest B2C market in the world.[16]

Some 2.5 million inhabitants in the country still do not shop online. The main reason is they prefer to visit a physical shop.[17]

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[9] https://www.ideal.nl/en/actueel/nieuws/ideal-growing-fast-as-a-result-of-secure-standards-and-uniform-rules/

[10] Postnl. 2018. *Q4 & FY 2017 Results*. https://www.postnl.nl/en/about-postnl/investors/quarterly-results-and-presentations/

[11] Statistics Netherlands. 2018. "More purchases being made online." *News*, 27 November. https://www.cbs.nl/en-gb/news/2017/47/more-purchases-being-made-online

[12] Number of enterprises engaged in "Retail sale via mail order houses or via Internet" sourced from the Eurostat database.

[13] Shops with online sales only or retail companies which operate a webshop aside from their brick-and-mortar shop(s). See: https://www.cbs.nl/en-gb/news/2017/47/spending-up-in-european-webshops

[14] Thuiswinkel. 2018. *Ecommerce Report: The Netherlands 2017*. https://www.ecommercewiki.org/reports/522/the-netherlands-2018-ecommerce-report-free
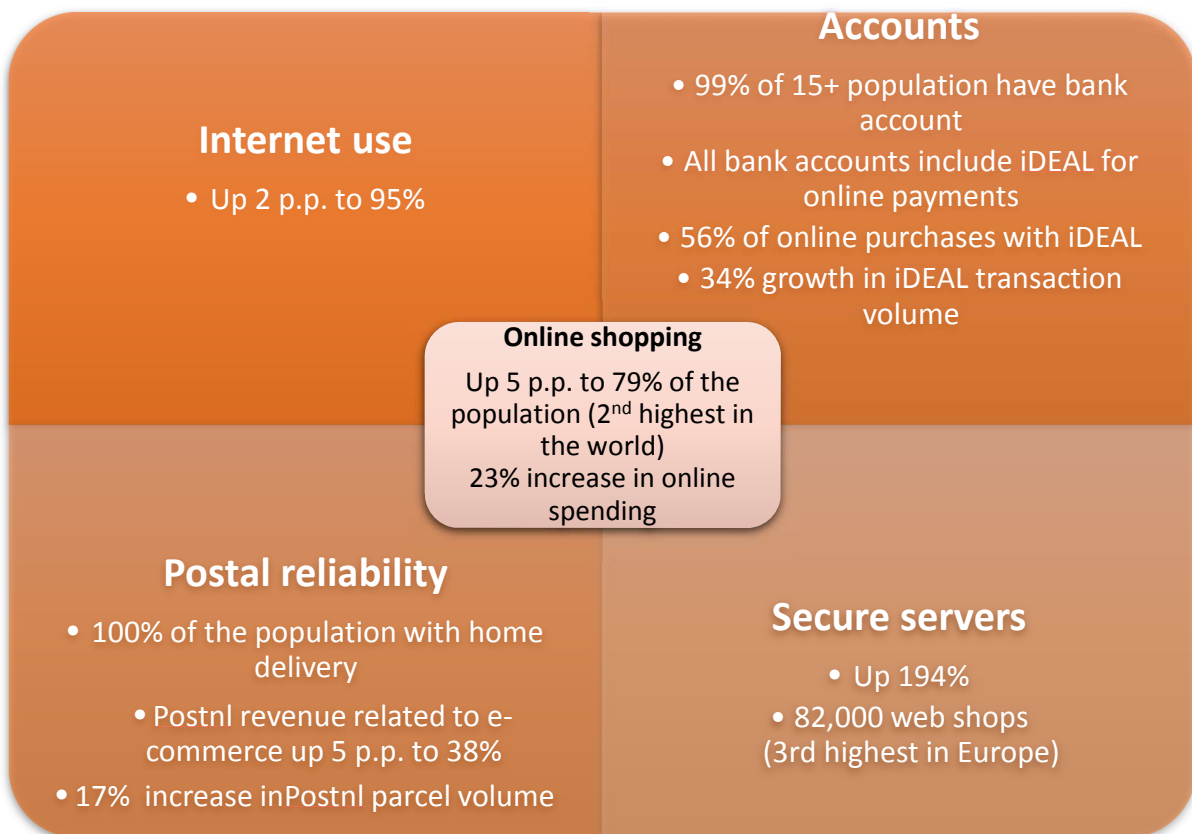
[15] "Over 800,000 online stores in Europe." *Ecommerce News*, 6 October 2017. https://ecommercenews.eu/800000-online-stores-europe/

[16] Thuiswinkel, op. cit..

[17] Statistics Netherlands, op. cit.

Figure 4. E-commerce ecosystem developments in the Netherlands, 2017

Internet use

• Up 2 p.p. to 95%

Accounts

• 99% of 15+ population have bank account
• All bank accounts include iDEAL for online payments
• 56% of online purchases with iDEAL
• 34% growth in iDEAL transaction volume

Online shopping

Up 5 p.p. to 79% of the population (2nd highest in the world)
23% increase in online spending

Postal reliability

• 100% of the population with home delivery
• Postnl revenue related to e-commerce up 5 p.p. to 38%
• 17% increase inPostnl parcel volume

Secure servers

• Up 194%
• 82,000 web shops (3rd highest in Europe)

Source: Eurostat, World Bank, iDEAL, Postnl, Ecommerce News, Thuiswinkel.

Asian nations lead among top 10 developing countries

All but one of the top ten developing countries are from the East or West Asian regions and all are upper middle-income or high-income economies (Table 2). Unlike the overall top ten, the range of index values is wide with a 26 point difference between first and tenth. Compared to the last index, Singapore has swapped ranks with the Republic of Korea as the top ranked country in the list. Mauritius and Trinidad and Tobago have dropped out while Chile (the only non-Asian country on the list) and Turkey have entered. Singapore is the only country also ranked in the overall top ten and was discussed above. Hong Kong (China) ranks 2nd among developing economies and 15th in the world. Like Singapore, it is a small island economy with relatively high values on all indicators.

The Republic of Korea is no longer in the top ten globally, mainly reflecting a downward revision in secure servers. Despite this, the country is top ranked for postal reliability and remains the largest B2C market by value among developing nations.

The United Arab Emirates, ranked fourth, does well in Internet usage and accounts, with room to improve for secure servers and postal reliability in order to emerge as a top-ranked nation in B2C e-commerce readiness. It is positioned first in the Gulf and is leveraging this to become a regional hub. One sign is the purchase of the United Arab Emirates online retailer

Souq.com by Amazon in May 2017 for $ 583 million.[18] Another is $735 million Dubai CommerCity, the first dedicated e-commerce park in the Middle East and North Africa.[19]

Malaysia, ranked fifth, is balanced across all dimensions of the index. Just over a third of the population made an online purchase in 2017 and the country has one of the highest proportions of B2C sales to GDP in the world. The Government has partnered with Chinese e-commerce company, Alibaba, to establish a dedicated e-commerce technology park, Digital Free Trade Zone, the first such facility in South East Asia.[20]

Thailand, ranked 6th does particularly well in postal reliability, and in extending access to financial accounts for its population. In 2017, Internet penetration reached over half of the population aged six and above. Though the level of online shopping remains relatively low, the market value is high resulting in one of the highest proportions of B2C revenue to GDP in the world. High postal reliability has been leveraged by Thailand Post by launching an online shopping portal and e-wallet.[21]

Turkey is a new entrant into the top ten developing countries. Now ranked 7th, it had one of the biggest increases in Internet access in the world in 2017, up six percentage points. The growth in Internet users drove a four percentage point increase in online shopping to 21% of the population.[22] That contributed to an increase in the value of B2C sales, up 32% for the year (Figure 5, left).[23] Growth in the B2C market is attracting outside interest, including from both Alibaba and Amazon, and they have each invested in the country.

The Islamic Republic of Iran ranks 8th among developing countries. The country's main strength is a high level of account ownership. The Statistical Center of Iran notes the introduction of this indicator in last year's index, remarking there are a dozen payment service providers for online purchases.[24] Its high rank is matched by a relatively high level of online shopping. Despite recurring sanctions, the nation has the second largest online shopping market among the top ten developing economies.

Chile does well on all indicators although postal reliability drags its score down. The country boasts the highest sales value per online shopper in Latin America and some 15% of enterprises in the country already sell online.[25]

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[18] Amazon. 2018. *Form 10-K 2017*. http://services.corporate-ir.net/SEC.Enhanced/SecCapsule.aspx?c=97664&fid=15414896
[19] "Dubai launches $735mn CommerCity, First e-commerce Free Zone in MENA." *Arabian Gazette*, 29 October 2017. https://arabiangazette.com/dubai-commercity-first-free-zone-ecommerce-mena/
[20] Alzahrin Alias. 2018. "Alibaba opens its regional office in Malaysia." *New Straits Times,* 18 June. https://www.nst.com.my/business/2018/06/381178/alibaba-opens-its-regional-office-malaysia
[21] "Thailand Post to launch e-commerce service offering local products." *Retail News Asia*, 19 June 2018. https://www.retailnews.asia/thailand-post-to-launch-e-commerce-service-offering-local-products/
[22] See: Eurostat indicator "Internet purchases by individuals [isoc_ec_ibuy]."
[23] Tübisad. 2018. *E-Commerce in Turkey: 2017 Market Size*. https://www2.deloitte.com/content/dam/Deloitte/tr/Documents/technology-media-telecommunications/TUBISAD_2018%20E-Commerce%20in%20Turkey_EN_final.pdf
[24] Saeed Fayyaz. 2018. "A review on measuring digital trade & e-commerce as new economic statistics products." Prepared for the *16th Conference of the International Association of Official Statisticians*. Paris, France, 19-21 September. http://www.oecd.org/iaos2018/programme/IAOS-OECD2018_Item_3-D-1-Fayyaz.pdf
[25] Cámara De Comercio De Santiago. 2018. *Tendencias Del Comercio Electrónico En Chile*. https://www.ccs.cl/estudios/docs/LEVER-ECD2018-CCS.pdf

Saudi Arabia completes the list of the top ten developing economies. The country has the largest B2C e-commerce market in the Gulf region. In a 2017 report, the Government makes note of the index and how the country can improve its ranking: "Saudi Arabia could move higher up in the ranking through boosting banking and credit card penetration and optimizing the number of secure Internet servers per 1 million people."[26]

Table 2: Top 10 developing economies in the UNCTAD B2C E-commerce index, 2018

2018 Rank	Economy	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalize) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)	Index value change (2016-17 data)	2017 Index rank
2	Singapore	84	98	98	100	95.2	1.7	18
15	Hong Kong (China)	89	95	84	92	90.2	1.1	16
21	Korea (Republic of)	95	95	66	100	89.0	0.6	5
33	United Arab Emirates	95	88	66	75	81.2	-4.6	23
34	Malaysia	80	85	78	80	80.8	2.2	39
43	Thailand	53	82	60	98	73.2	4.3	49
47	Turkey	65	69	74	76	71.1	4.5	60
49	Iran (Islamic Republic of)	60	94	52	77	70.9	0.8	47
50	Chile	82	74	81	44	70.4	-0.8	54
52	Saudi Arabia	80	72	49	74	68.7	0.7	46

Digital readiness is attracting foreign direct investment

A competitive B2C e-commerce ecosystem, as reflected by the index, appears to be enticing foreign investment. Several of the top ten developing countries in the index saw inflows of foreign direct investment (FDI) into their e-commerce sectors in 2017, amounting to at least $1.7 billion (Figure 5, right). Venture capital is also attracted to favorable e-commerce environments. In Thailand e-commerce companies were the largest recipients of the $106 million of such investment in the country in 2017.[27] Singapore ride-sharing company Grab received $2 billion in venture capital in July 2017.[28]

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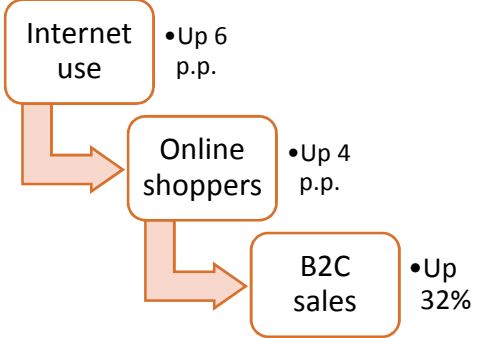
[26] Communications and Information Technology Commission (CTC). 2017. *E-Commerce in Saudi Arabia*. http://www.citc.gov.sa/en/reportsandstudies/Reports/Documents/CITC_ECOMMERCE_2017_ENGLISH.PDF

[27] Sasiwimon Boonruang. 2018. "Surge in startup funding led by e-commerce, marketplace." Bangkok Post, 23 February. https://www.bangkokpost.com/business/news/1416715/surge-in-startup-funding-led-by-e-commerce-marketplace

[28] "Grab Announces Didi Chuxing and SoftBank As Lead Investors for Current Round of Financing." *Press Release*, 24 July 2017. https://www.grab.com/sg/press/business/grab-announces-didi-chuxing-softbank-lead-investors-current-round-financing/

Figure 5. Internet and online shopping growth in Turkey and foreign investment in e-commerce in the top ten developing countries in the UNCTAD B2C E-commerce Index

a. Internet and online shopping growth in Turkey, 2017	b. FDI in e-commerce among top 10 developing countries in the index, 2017	
	Singapore	Alibaba invests $1 billion in Singapore headquartered Lazada[29]
	United Arab Emirates	Amazon purchases Souq for $ 583 million[30]
	Malaysia	Alibaba invests $ 100 million.[31]
	Turkey	Amazon announces intention to launch; started operations in 2018 (no financial figures available). Alibaba announces intention to invest in 2017 and buys stake in local e-commerce company in 2018 for $ 1 billion. [32]
	Islamic Republic of Iran	$ 100 million foreign investment by IIIC in leading e-commerce company Digikala[33]

In the left panel:

- Internet use •Up 6 p.p.
- Online shoppers •Up 4 p.p.
- B2C sales •Up 32%

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[29] "Alibaba Increases Stake in E-Commerce Platform Lazada." *Press Release*, 28 June 2017. https://www.businesswire.com/news/home/20170628005543/en/Alibaba-Increases-Stake-E-Commerce-Platform-Lazada

[30] Amazon. 2018. Form 10-K 2017. http://services.corporate-ir.net/SEC.Enhanced/SecCapsule.aspx?c=97664&fid=15414896

[31] Samantha Ho. 2018. "Alibaba's investment in Malaysia is US$100m and counting." *The Edge Financial Daily*, 19 June. http://www.theedgemarkets.com/article/alibabas-investment-malaysia-us100m-and-counting

[32] Sinan Tavsan. 2018. "Alibaba and eBay try their luck in Turkey's e-commerce market." *Nikkei Asian Review*, 17 July. https://asia.nikkei.com/Business/Business-Trends/Alibaba-and-eBay-try-their-luck-in-Turkey-s-e-commerce-market

[33] Esfandyar Batmanghelidj. 2018. "Iran's E-Commerce and App Store Giants Continue March to Unicorn Valuations." *Bourse & Bazaar*, 22 January. https://www.bourseandbazaar.com/articles/2017/12/6/irans-e-commerce-giant-reportedly-crosses-500-million-milestone-valuation

Table 3 shows the top ranked economies in each region while Table 4 shows the average values for each region.

Table 3. Top 10 developing and transition economies in the UNCTAD B2C E-commerce Index, 2018, by region

East, South & Southeast Asia	West Asia & North Africa	Sub-Saharan Africa	Latin America and the Caribbean	Transition economies
Singapore	United Arab Emirates	Mauritius	Chile	Belarus
Hong Kong (China)	Turkey	Nigeria	Brazil	Serbia
Korea, Republic of	Saudi Arabia	South Africa	Jamaica	Russian Federation
Malaysia	Islamic Republic of Iran	Ghana	Trinidad and Tobago	Georgia
Thailand	Bahrain	Kenya	Costa Rica	Macedonia, TFYC
Mongolia	Lebanon	Uganda	Colombia	Ukraine
China	Kuwait	Botswana	Uruguay	Kazakhstan
Viet Nam	Oman	Cameroon	Venezuela, Bolivarian Republic of	Moldova
India	Jordan	Namibia	Belize	Bosnia and Herzegovina
Bangladesh	Tunisia	Gabon	Argentina	Albania

Table 4. Regional values for the UNCTAD B2C E-commerce index, 2018

	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalized) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)
Africa	26	40	29	24	30
East, South & Southeast Asia	48	62	57	62	57
Latin America & the Caribbean	54	53	54	24	46
Western Asia	71	58	51	42	57
Transition economies	65	59	65	71	65
Developed	84	93	88	81	86
World	54	60	56	49	55

Figure 6 illustrates the minimum and maximum indicator values for the 2018 index. Postal reliability continues to be the indicator with the most fluctuation. Countries making notable gains include Paraguay for Internet usage (based on national surveys rather than estimates). The landlocked South American nation grew its Internet penetration six percentage points to 60.5% of the population 10 years and older. The biggest gain in secure Internet server penetration (normalized value) was in Morocco, with an increase of 15 percentage points. In respect to having an account, Armenia saw the biggest gain (based on the estimated 2016 value) with a rise of 14 percentage points. The biggest improvement in UPU's postal reliability index was noted for Sudan, where the value rose by 48 points.

Figure 6. Minimum and maximum changes in value, by indicator included in the UNCTAD B2C Ecommerce Index 2018

Note: Internet use based on countries for which survey data is available for 2016 and 2017. Figure for secure servers refers to the normalized value. Figure for accounts uses 2016 value that has been estimated based on the 2014-2017 compound annual growth rate.

Special focus on Africa in the B2C index

Forty-four African countries are included in the 2018 edition of the index. The region lags the rest of the world in terms of e-commerce readiness. Mauritius – with a ranking of 55 – is the highest ranked African country, and as many as nine of the bottom ten countries are in Africa. However, the continent is showing progress in key indicators related to B2C e-commerce. Since 2014, sub-Saharan Africa has surpassed world growth on three of the indicators used in the index (Figure 7).

Figure 7. Growth in B2C Index indicators, sub Saharan Africa
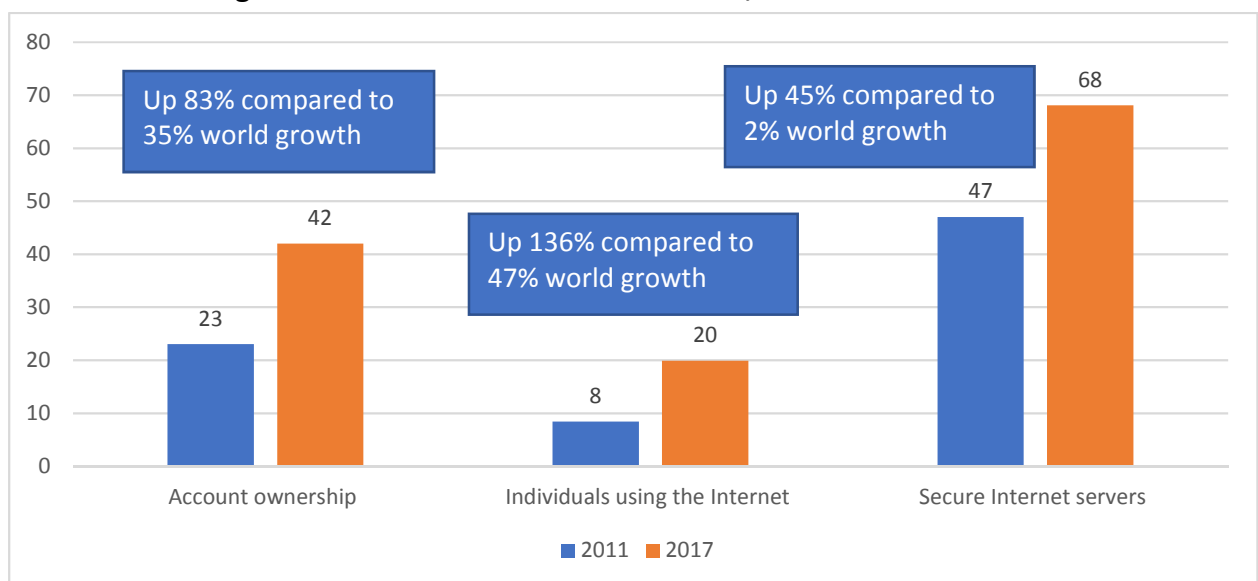
Note: Secure Internet servers have been normalized.
Source: ITU, Netcraft and World Bank.

The top ten ranked African countries in the index are shown below.

Table 5. Top 10 African countries in the UNCTAD B2C E-commerce Index, 2018

	Economy	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalized) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)	Index value change (2016-17 data)	World Rank
1	Mauritius	55	90	56	66	66.9	-7.2	55
2	Nigeria	42	40	52	85	54.7	5.5	75
3	South Africa	59	69	83	0	52.9	-1.9	77
4	Tunisia	56	37	51	63	51.7	2.1	79
5	Morocco	62	29	54	59	50.9	NA	81
6	Ghana	39	58	45	53	48.8	7.6	85
7	Kenya	39	82	37	27	46.2	3.7	89
8	Uganda	17	59	31	58	41.5	-3.2	99
9	Botswana	47	51	41	26	41.4	0.1	100
10	Cameroon	23	35	25	78	40.3	3.6	101

Note: All indicators refer to 2017. For sources, see Box 1.

The top three African countries each has a distinctive strength in one of the four areas measured by the index. Highest ranked Mauritius has a considerable 13 point higher score than the next African country. This small island developing state scores relatively high in all four areas but particularly with regard to the share (90%) of the population having an account. In an effort to get more SMEs online, the Government launched a shopping portal in 2018 offering tax free purchases.[34]

Nigeria, the most populous African nation, ranks second, largely thanks to a significant increase in postal reliability as measured by the Universal Postal Union (UPU). As Africa's largest B2C e-commerce market (in terms of both number of shoppers and revenue), reliable delivery of products is critical. The UPU explains the country's high score as follows:

> "Nigeria has achieved the top spot in the region thanks to sustained performance in terms of reliability and connectivity, in spite of a drop in resilience. Indeed, with a score of 85.12, Nigeria's reliability is among the 25 highest in the sample. This is corroborated by relatively good average delivery times of 3.6, 4.4 and 2.0 days for letters, parcels and express mail respectively."[35]

Box 3. what2words for addresses in Nigeria

Nigerian Post (NIPOST) aims to reach 90 per cent home delivery by 2020 through its "Mail for Every House Initiative." One challenge has been the addressing system that only allows 20% of inhabitants to get home delivery.[36] NIPOST has adopted an innovative addressing system launched by a United Kingdom startup known as "what3words."[37] The system has divided the world into 57 trillion 3 x 3

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[34] Government of Mauritius. 2018. "E-Commerce Service launched to promote local operators ." *Press Release*, 14 May. http://www.govmu.org/English/News/Pages/E-Commerce-Service-launched-to-promote-local-operators-.aspx

[35] Universal Postal Union (UPU). 2018. *Postal development report 2018*. http://www.upu.int/uploads/tx_sbdownloader/postalDevelopmentReport2018En.pdf

[36] "Nigeria adopts new postal system to improve delivery service to homes." Premium Times, 2 August 2017. https://www.premiumtimesng.com/news/top-news/238974-nigeria-adopts-new-postal-system-improve-delivery-service-homes.html

[37] https://map.what3words.com/daring.lion.race

meter cells with each cell associated to a unique three words (available in 26 languages). The main post office in Nigeria's capital Abuja is labelled bracelets.hesitations.mutes. The idea is that a three word label is easier to remember than a full address or GPS coordinates. NIPOST became the seventh postal service in the world to adopt the system (and third in Africa after Côte d'Ivoire and Djibouti).[38]

South Africa is third, level with several other African countries (Cabo Verde, Gabon, Mauritius and Morocco) for its Internet penetration, with around six in ten inhabitants using the Internet in 2017. South Africa leads by some margin in the number of secure Internet servers per one million people, an indication of websites accepting online sales and payments. Local online shopping sites such as "Bidorbuy" and "Takealot" dominate the B2C market and are backed by local and international venture capital investment. Payments are facilitated with instant transfers through bank accounts and several domestic digital wallets. One challenge is getting more SMEs on board.[39] E-commerce integrator, UAfrica, provides multichannel platform services that simplifies the process of establishing a shopping site.[40]

While the B2C Index is highly correlated with the proportion of online shoppers for the world as a whole, in Africa this relationship is more tenuous as other factors than those captured by the index may be at play. For example, having an account may not be as important given the popularity of cash on delivery for e-commerce (Figure 8). Similarly, reliability of the national postal service may not always be critical if other alternatives are available. In Nigeria, e-commerce company Jumia has over 500 vehicles that deliver to customers in the largest cities. Another Nigerian e-commerce company, Konga, has a fleet of over 200 vehicles as well as pick-up points and distribution centers throughout the country.[41]

Figure 8: Preferred method of shopping on Jumia Nigeria

Source: https://www.jumia.com.ng/mobile-report/

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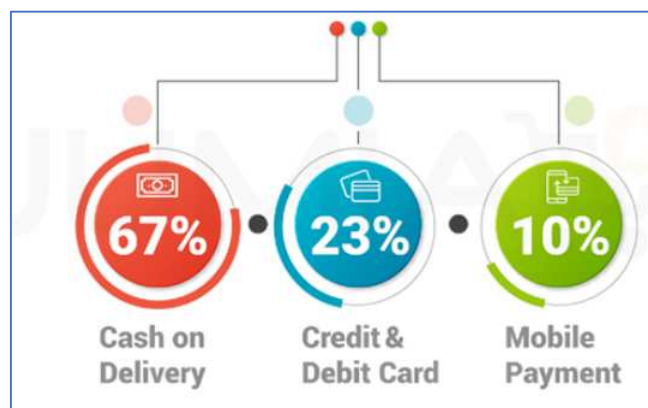
[38] "Nigeria, one of Africa's largest economies, adopts 3-word addresses." *Press Release*, 2 August 2017. http://press.what3words.com/157526-nigeria-one-of-africa-s-largest-economies-adopts-3-word-addresses
[39] Percy Mkhosi. 2017. *National report on e-commerce development in South Africa*. Vienna: UNIDO. https://www.unido.org/api/opentext/documents/download/9922241/unido-file-9922241
[40] https://www.uafrica.com
[41] Marcia Kaplan. 2018. "Africa: An Emerging Ecommerce Market with Many Challenges." *PracticalEcommerce,* 13 June. https://www.practicalecommerce.com/africa-emerging-ecommerce-market-many-challenges

This disparity in core indicators and actual shopping is reflected in shopping statistics. While Mauritius is top ranked in the index and has the second highest proportion of shoppers on the continent, other countries with a large proportion of online shoppers are not necessarily highly ranked in the index (Table 6). Libya is ranked 13[h] in Africa, and affected by political conflict. Nevertheless, it has the highest proportion of online shoppers on the continent (15% of the population aged 15 and older). In Gabon, 6% of the population shops online, sixth highest in Africa, yet it ranks only 12th among the African countries in the index. The main reason these countries have relatively low index scores compared to their online shopping rank are low scores in the UPU postal reliability index. High levels of urbanization in Libya and Gabon (80% and 89% of the population respectively) suggests that postal services are not a major impediment since urban delivery alternatives can be more easily arranged.

Table 6. Top 10 African countries by proportion of individuals shopping online, 2017

Rank	Country	Online purchase (% age 15+) 2017	Online shoppers (000s)	Online shoppers (000s) rank in Africa	B2C Index rank in Africa	Internet use	Shoppers (% of Internet users)
1	Libya	14.6	629	10	13	20	67%
2	Mauritius	14.4	129	26	1	55	26%
3	Namibia	12.1	184	21	11	31	24%
4	Kenya	9.3	2,614	3	7	39	24%
5	South Africa	7.9	2,929	2	3	59	13%
6	Gabon	6.1	74	29	12	62	10%
7	United Republic of Tanzania	5.3	1,593	4	16	25	21%
8	Zambia	5.1	459	11	26	24	21%
9	Tunisia	4.7	366	14	4	56	8%
10	Mozambique	4.3	665	9	32	23	19%

Note: At the time of this report, 2017 estimates of Internet use were not available for these countries (except Tunisia) from the ITU. Data have been sourced from national statistics offices or when no official survey is carried out, from Afrobarometer[42] and Pew.[43] AfroBarometer and Pew carry out nationally representative surveys of the age 18+ population using large sample sizes to reduce the margin of error. No 2017 survey data is available for Libya or Mozambique and instead ITU 2016 estimates have been used. The online purchase data have been sourced from the World Bank's Financial Inclusion Survey.

It is estimated that there were at least 21 million online shoppers in Africa in 2017 or less than two percent of the world total. Three countries (Nigeria, South Africa and Kenya) together, accounted for almost half of them. The number of shoppers has surged annually by 18% since 2014, higher than the world average growth rate of 12%. UNCTAD estimates

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[42] http://www.afrobarometer.org/online-data-analysis

[43] Pew Research Center. 2018. *Social Media Use Continues To Rise in Developing Countries, but Plateaus Across Developed Ones*. http://www.pewglobal.org/2018/06/19/social-media-use-continues-to-rise-in-developing-countries-but-plateaus-across-developed-ones/

that the B2C e-commerce market in Africa was worth about $ 5.7 billion in 2017, which corresponds to less than 0.5% of GDP, far below the world average of over 4%.[44]

While Africa needs to boost Internet penetration to grow e-commerce, it also needs to get more of its existing Internet users to trust the online market for making purchases. Unlike developed markets such as the European Union, where 68% of Internet users made an online purchase in 2017,[45] the corresponding figure in Africa was only 13% on average in 2017. If the ratio of online shoppers to Internet users in the region was increased to 50%, an additional 77 million online shoppers would be added and the estimated B2C revenue (assuming average annual spend was halved) would more than double (Figure 9).

Figure 9. Online shoppers in Africa and estimated shoppers and B2C revenue if half of African Internet users shopped online
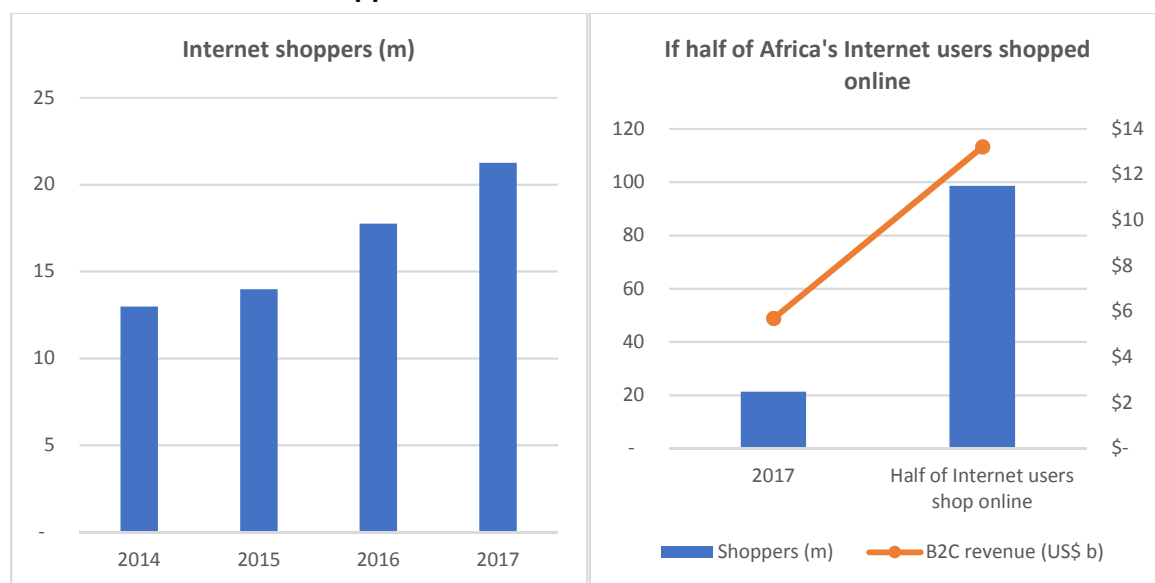
Source: UNCTAD estimates.

UNCTAD is supporting the ability of African countries to engage in and benefit from e-commerce through Rapid eTrade Readiness Assessments of least development countries. They identify bottlenecks and propose remedies. As of November 2018, assessments in Africa had been completed for Burkina Faso, Liberia, Madagascar, Senegal, Togo, Uganda and Zambia.

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[44] This estimate is derived from data from the World Bank on the proportion of individuals who shop online (https://datacatalog.worldbank.org/dataset/global-financial-inclusion-global-findex-database) and figures from Pan-African B2C company Jumia on average annual online shopping spend ("Jumia Company Presentation", January 2018 at: https://11f5n223it01wurm02957bjg-wpengine.netdna-ssl.com/wp-content/uploads/2018/01/Jumia_Company_Presentation.pdf).

[45] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Internet_users_who_bought_or_ordered_goods_or_services_for_private_use_in_the_previous_12_months,_2012_and_2017_(%25_of_internet_users).png

Table 7. UNCTAD B2C E-commerce Index, 2018, Africa

	Economy	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalized) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)	Index value change (2016-17 data)	World Rank
1	Mauritius	55	90	56	66	66.9	-7.2	55
2	Nigeria	42	40	52	85	54.7	5.5	75
3	South Africa	59	69	83	0	52.9	-1.9	77
4	Tunisia	56	37	51	63	51.7	2.1	79
5	Morocco	62	29	54	59	50.9	NA	81
6	Ghana	39	58	45	53	48.8	7.6	85
7	Kenya	39	82	37	27	46.2	3.7	89
8	Uganda	17	59	31	58	41.5	-3.2	99
9	Botswana	47	51	41	26	41.4	0.1	100
10	Cameroon	23	35	25	78	40.3	3.6	101
11	Namibia	31	81	46	0	39.5	-4.9	103
12	Gabon	62	59	34	0	38.9	5.1	104
13	Libya	20	66	64	0	37.6	NA	107
14	Senegal	46	42	24	34	36.8	4.5	108
15	Zimbabwe	31	55	34	26	36.7	1.2	109
16	United Republic of Tanzania	25	47	32	42	36.5	8.0	110
17	Algeria	43	43	41	18	36.3	0.5	111
18	Egypt	45	33	36	23	34.4	2.3	113
19	Rwanda	20	50	31	30	32.7	-5.1	116
20	Djibouti	13	12	32	20	30.2	13.5	119
21	Togo	12	45	19	41	29.6	-2.3	121
22	eSwatini	29	29	36	23	29.0	1.8	122
23	Sudan	28	15	12	59	28.7	14.7	123
24	Côte d'Ivoire	44	41	25	0	27.6	-10.6	124
25	Lesotho	27	46	31	4	27.2	1.3	126
26	Zambia	24	46	38	0	27.0	2.4	127
27	Madagascar	10	18	20	54	25.6	-4.2	129
28	Mali	11	35	23	25	23.9	-0.6	131
29	Angola	13	29	26	26	23.9	-4.7	132
30	Burkina Faso	16	43	12	22	23.4	1.8	133
31	Malawi	11	34	26	18	22.3	2.2	134
32	Mozambique	18	42	23	0	20.8	NA	137
33	Benin	12	38	18	11	20.1	4.7	138
34	Mauritania	18	21	18	21	19.6	0.3	139
35	Ethiopia	15	35	4	17	17.8	-0.4	141
36	Sierra Leone	12	20	11	20	15.9	-0.9	143
37	Liberia	7	36	12	7	15.6	-2.1	144
38	Congo	8	26	19	3	14.3	-2.7	145
39	Comoros	8	22	20	0	12.5	-7.5	146
40	Burundi	5	7	19	15	11.8	1.8	147
41	Congo, D.R.	6	26	14	0	11.7	-1.0	148
42	Guinea	10	23	10	2	11.4	-0.9	149
43	Chad	5	22	2	0	7.4	0.7	150
44	Niger	10	16	0	0	6.6	2.4	151

Source: UNCTAD.

Table 8. UNCTAD B2C E-commerce index, 2018, World

2018 Rank	Economy	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalized) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)	Index value change (2016-17 data)	2017 Index rank
1	Netherlands	95	100	100	90	96.1	-0.1	4
2	Singapore	84	98	98	100	95.2	1.8	18
3	Switzerland	94	98	94	94	95.0	-0.8	2
4	United Kingdom	95	96	90	96	94.4	0.6	6
5	Norway	98	100	87	90	93.5	-0.5	3
6	Iceland	98	99	98	78	93.5	0.3	11
7	Ireland	81	95	95	100	92.8	1.5	19
8	Sweden	96	100	86	89	92.7	-0.1	7
9	New Zealand	88	99	87	96	92.6	0.5	10
10	Denmark	97	100	96	74	91.8	-1.6	13
11	Australia	87	100	90	91	91.7	0.1	14
12	Finland	87	100	90	88	91.4	0.4	12
13	United States	89	93	93	89	91.1	2.1	26
14	Canada	91	100	92	81	90.8	-1.4	15
15	Hong Kong (China)	89	95	84	92	90.2	1.1	16
16	Germany	90	99	94	83	90.1	-1.4	9
17	Latvia	81	93	85	98	89.5	2.0	24
18	Slovenia	79	98	89	92	89.5	2.6	25
19	Luxembourg	98	99	96	65	89.3	-6.0	1
20	Estonia	88	98	93	78	89.1	-1.2	21
21	Korea (Rep.)	95	95	66	100	89.0	0.6	5
22	Austria	88	98	81	89	89.0	0.6	17
23	France	81	94	87	93	88.6	0.6	20
24	Japan	91	98	79	84	88.2	-2.8	8
25	Slovak Republic	82	84	81	94	85.1	1.6	30
26	Cyprus	81	89	88	82	85.0	-0.3	27
27	Israel	82	93	81	84	84.7	2.6	31
28	Belgium	88	99	82	70	84.5	-1.3	22
29	Lithuania	78	83	86	89	83.8	1.7	36
30	Malta	80	97	87	66	82.5	1.1	28
31	Czech Republic	79	81	91	78	82.2	-1.6	29
32	Croatia	67	86	87	86	81.4	0.7	32
33	United Arab Emirates	95	88	66	75	81.2	-4.6	23
34	Malaysia	80	85	78	80	80.8	2.2	39
35	Poland	76	87	80	73	78.9	1.0	38
36	Bulgaria	63	72	93	80	77.3	6.6	50
37	Belarus	74	81	71	81	77.0	5.2	44

2018 Rank	Economy	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalized) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)	Index value change (2016-17 data)	2017 Index rank
38	Spain	85	94	81	48	76.9	-2.1	34
39	Hungary	77	75	86	70	76.9	-3.6	37
40	Greece	70	85	75	74	76.2	-3.1	35
41	Serbia	70	71	79	78	74.7	2.2	42
42	Russia	76	76	75	70	74.3	2.7	43
43	Thailand	53	82	60	98	73.2	4.3	49
44	Italy	61	94	81	56	73.1	-0.6	41
45	Romania	64	58	85	85	72.9	1.3	45
46	Georgia	60	61	72	96	72.3	9.5	70
47	Turkey	65	69	74	76	71.1	4.5	60
48	Macedonia	72	77	58	76	71.0	-2.4	#N/A
49	Iran	60	94	52	77	70.9	0.8	47
50	Chile	82	74	81	44	70.4	-0.8	54
51	Ukraine	53	63	76	89	70.1	5.6	63
52	Saudi Arabia	80	72	49	74	68.7	0.7	46
53	Kazakhstan	76	59	66	71	68.1	0.7	51
54	Moldova	62	44	73	90	67.2	3.8	66
55	Mauritius	55	90	56	66	66.9	-7.2	40
56	Portugal	74	92	85	15	66.8	-2.8	48
57	Bosnia	69	59	67	71	66.7	2.1	51
58	Mongolia	22	93	68	81	66.1	-0.9	55
59	Kuwait	78	80	58	25	65.2	4.4	57
60	Qatar	95	66	57	37	63.7	4.5	58
61	Brazil	67	70	68	49	63.6	0.9	62
62	Bahrain	96	83	56	14	62.1	-16.3	33
63	China	54	80	51	61	61.7	3.0	65
64	Lebanon	83	45	47	70	61.3	0.8	56
65	Albania	66	40	57	80	61.1	-0.5	59
66	Armenia	64	48	53	74	60.1	8.7	78
67	Jamaica	44	78	48	68	59.8	-3.3	53
68	Azerbaijan	79	29	53	76	59.3	1.0	68
69	Vietnam	60	31	67	74	58.0	4.9	74
70	Trinidad & Tobago	73	81	54	24	58.0	-14.2	#N/A
71	Costa Rica	72	68	66	25	57.7	-4.8	61
72	Oman	71	74	48	36	57.2	-1.3	64
73	Jordan	80	42	46	55	55.9	3.5	75
74	Colombia	62	46	58	57	55.9	-0.2	71
75	Nigeria	42	40	52	85	54.7	5.5	80
76	Montenegro	71	68	52	23	53.7	-1.6	69

2018 Rank	Economy	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalized) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)	Index value change (2016-17 data)	2017 Index rank
77	South Africa	59	69	83	0	52.9	-1.9	72
78	Uruguay	66	64	65	16	52.9	-7.4	67
79	Tunisia	56	37	51	63	51.7	2.1	79
80	India	25	80	47	54	51.5	2.0	83
81	Morocco	62	29	54	59	50.9	NA	85
82	Venezuela	72	73	53	0	49.8	4.4	95
83	Belize	45	48	82	23	49.5	0.8	77
84	Argentina	78	49	68	0	48.8	1.9	81
85	Ghana	39	58	45	53	48.8	7.6	105
86	Uzbekistan	47	37	51	58	48.2	11.0	106
87	Panama	54	46	71	15	46.7	3.5	84
88	Bangladesh	18	50	41	75	46.3	4.3	103
89	Kenya	39	82	37	27	46.2	3.7	82
90	Indonesia	32	49	66	35	45.7	3.4	101
91	Dominican Republic	64	56	45	16	45.4	3.0	88
92	Philippines	56	35	44	45	45.1	4.9	96
93	Sri Lanka	21	74	54	30	44.8	-5.7	73
94	Peru	49	43	51	36	44.8	3.7	94
95	Mexico	64	37	50	25	44.1	3.9	90
96	El Salvador	29	30	41	68	42.1	-4.6	76
97	Paraguay	60	49	50	6	41.7	-3.2	93
98	Laos	22	29	30	85	41.5	0.2	92
99	Uganda	17	59	31	58	41.5	-3.2	86
100	Botswana	47	51	41	26	41.4	0.1	87
101	Cameroon	23	35	25	78	40.3	3.6	107
102	Ecuador	57	51	51	0	40.0	-1.1	91
103	Namibia	31	81	46	0	39.5	-4.9	89
104	Gabon	62	59	34	0	38.9	5.1	110
105	Bolivia	40	54	46	12	38.1	1.9	102
106	Honduras	30	45	43	33	38.1	-0.8	98
107	Libya	20	66	64	0	37.6	NA	#N/A
108	Senegal	46	42	24	34	36.8	4.5	112
109	Zimbabwe	31	55	34	26	36.7	1.2	109
110	Tanzania	25	47	32	42	36.5	8.0	119
111	Algeria	43	43	41	18	36.3	0.5	97
112	Bhutan	42	34	46	20	35.3	1.3	100
113	Egypt	45	33	36	23	34.4	2.3	116
114	Kyrgyzstan	38	40	45	12	33.8	1.9	117
115	Nepal	20	45	48	20	33.4	-3.9	108

2018 Rank	Economy	Share of individuals using the Internet (2017 or latest)	Share of individuals with an account (15+, 2017 or latest)	Secure Internet servers (normalized) (2017)	UPU postal reliability score (2017 or latest)	Index value (2017 data)	Index value change (2016-17 data)	2017 Index rank
116	Rwanda	20	50	31	30	32.7	-5.1	99
117	Pakistan	16	21	47	45	32.3	3.6	120
118	Cambodia	34	22	40	26	30.5	-0.1	115
119	Guatemala	35	44	42	0	30.2	0.1	129
119	Djibouti	13	12	32	20	30.2	13.5	#N/A
121	Togo	12	45	19	41	29.6	-2.3	111
122	eSwatini	29	29	36	23	29.0	1.8	114
123	Sudan	28	15	12	59	28.7	14.7	137
124	Côte d'Ivoire	44	41	25	0	27.6	-10.6	104
125	Myanmar	25	26	26	32	27.4	0.3	123
126	Lesotho	27	46	31	4	27.2	1.3	125
127	Zambia	24	46	38	0	27.0	2.4	121
128	Nicaragua	25	31	47	2	26.2	1.8	122
129	Madagascar	10	18	20	54	25.6	-4.2	118
130	Iraq	49	23	26	0	24.6	8.8	139
131	Mali	11	35	23	25	23.9	-0.6	124
132	Angola	13	29	26	26	23.9	-4.7	113
133	Burkina Faso	16	43	12	22	23.4	1.8	128
134	Malawi	11	34	26	18	22.3	2.2	131
135	Syria	32	23	27	3	21.6	-2.6	127
136	Afghanistan	11	15	38	20	21.0	0.8	132
137	Mozambique	18	42	23	0	20.8	NA	#N/A
138	Benin	12	38	18	11	20.1	4.7	138
139	Mauritania	18	21	18	21	19.6	0.3	126
140	Yemen	25	6	16	0	18.7	0.4	#N/A
141	Ethiopia	15	35	4	17	17.8	-0.4	133
142	Haiti	12	33	19	1	16.3	-0.8	134
143	Sierra Leone	12	20	11	20	15.9	-0.9	136
144	Liberia	7	36	12	7	15.6	-2.1	130
145	Congo	8	26	19	3	14.3	-2.7	135
146	Comoros	8	22	20	0	12.5	-7.5	141
147	Burundi	5	7	19	15	11.8	1.8	140
148	Congo, D.R.	6	26	14	0	11.7	-1.0	#N/A
149	Guinea	10	23	10	2	11.4	-0.9	142
150	Chad	5	22	2	0	7.4	0.7	143
151	Niger	10	16	0	0	6.6	2.4	144

Source: UNCTAD.

UNCTAD Technical Notes on ICT for Development

1. Implications of Applying the New Definition of «ICT Goods», May 2011

2. Updating the Partnership Definition of ICT Goods From HS 2007 to HS 2012, January 2014

3. International Trade in ICT Services and ICT-enabled Services: Proposed Indicators from the Partnership on Measuring ICT for Development, October 2015

4. Global Assessment of Sex-disaggregated ICT Employment Statistics: Data Availability and Challenges on Measurement and Compilation, December 2015

5. Trade in ICT Goods and the 2015 Expansion of the WTO Information Technology Agreement, December 2015

6. In Search of Cross-border E-commerce Trade Data, April 2016

7. UNCTAD B2C E-commerce Index 2016, April 2016

8. The «New» Digital Economy and Development, October 2017

9. UNCTAD B2C E-commerce Index 2017, October 2017

10. Updating the Partnership Definition of ICT Goods From HS 2012 to HS 2017, February 2018

11. Implementing a Survey on Exports of ICT-enabled Services, June 2018

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