OPEN DATA INVENTORY
2017 ANNUAL REPORT

A PROGRESS REPORT ON OPEN DATA

Acknowledgements

The Open Data Inventory is a team effort. We are pleased to acknowledge the help of all who contributed to this work.

The Open Data Inventory is managed by Jamison Crowell assisted by Tawheeda Wahabzada, under the direction of Eric Swanson. Amelia Pittman helped with the development of maps and charts. Other contributors include: Deirdre Appel, Caleb Rudow, Shaida Badiee, Misha Belkindas, Reza Farivari, and Martin Getzendanner.

ODIN Assessors
Laura Batista, Walter Leiva Bonilla, Sarah Cover, Gabrielle Hibbert, Daniel Hiller, Niña Ledonio, Yuan Lei, Dominic Scerbo, and Marie-Charlotte Pierre.

ODIN Reviewers
Jamison Crowell, Chandrika Kaul, Tawheeda Wahabzada, and Walter Leiva Bonilla.

Website and publication design
District Design Group

Website development
Akron, Inc.
Funding Provided by the William and Flora Hewlett Foundation

www.odin.opendatawatch.com

OPEN DATA INVENTORY
2017 ANNUAL REPORT

A PROGRESS REPORT ON OPEN DATA

OPEN DATA WATCH, INC

opendatawatch.com

Table of Contents

Table of Contents

Executive Summary

The Open Data Inventory (ODIN) provides an assessment of the coverage and openness of official statistics published on the websites of national statistical offices (NSOs). The purpose of ODIN is to provide an objective and reproducible measure of the availability of official statistics that meet the definition of open data. Now in its third year, ODIN is able to measure changes over time as well as differences between countries, regions, and income groups. Results from 2017 indicate that progress to date has been slow. The importance of increasing the availability and openness of data can be seen in the large number of indicators for the Sustainable Development Goals (SDGs) that remain unavailable almost three years after the adoption of the 2030 Development Agenda.

In 2017 ODIN assessments included 21 data categories in 180 countries. A new category for crime and justice statistics was added. ODIN results for 2017 show, on average, some improvement in data openness but stagnation or a decline in the availability of data on official websites. The median score for data coverage in 2017 was 36.5, a decrease of 2.5 points from 2016. The median score for openness increased from 37.0 to 37.5. The median overall ODIN score of 37.4 signifies that fewer than half of the included countries met as much as 38 percent of the ODIN criteria for data coverage and openness.

The highest scoring country was Denmark. Four new countries moved into the top ten list—Netherlands, Bulgaria, Mexico, and Slovenia—displacing Czech Republic, Lithuania, Estonia, and the United States. Rwanda, ranked 41st in the world, was the highest scoring low-income country.

Data gaps suppress ODIN scores. Out of 21 data categories, ODIN assessors found, on average, no data for representative indicators in over four data categories. Most often missing were data for energy use, pollution, and crime and justice statistics. Because the openness of unpublished data cannot be assessed, countries with many data gaps have lower scores for openness as well as data coverage. To ensure that available data sources were not overlooked, national statistical offices were invited to review and supplement the links found by ODIN assessors. Sixty-five NSOs offered to participate and 48 provided additional sources of data.

The availability of data at the first and second administrative (subnational) levels has improved since 2016, although second-level data remain scarce for most countries. The availability of time-series data for the last five- and ten-year periods declined slightly. To increase their coverage scores, countries need to expand their data coverage, preserve historical data, and, wherever possible, publish more data at the subnational level.

The scoring of download options has changed in ODIN 2017, resulting in a substantial increase in average scores from 2016. Other elements of openness showed small changes. The weakest element is the provision of open terms of use, which had an average score of 21 across all countries and data categories. The simplest and least costly improvement most countries can make in their ODIN scores is to adopt an open license covering the free use and reuse of their official statistics.

The lack of gender data remains a serious impediment to implementing policies to achieve gender equality and the empowerment of women. To focus on the most important gender indicators in ODIN, a weighted index was constructed using six data categories directly relevant to monitoring SDG goal 5 and other gender-relevant targets. The median overall score for the gender index was 36.4, one point less than the median score across all data categories. The median coverage score was 32.4, well below the all categories median of 36.5, while the median openness score was 39.1, 1.6 points higher than the all categories median score.

All ODIN results are available at odin.opendatawatch.com. The ODIN website now includes an option for customized weighting of data categories and elements. With this option, users can create their own indexes or redefine the scores and subscores produced by ODIN.

Since the publication in 2014 of *A World That Counts: Mobilising the Data Revolution for Sustainable Development*[a], there has been high-level recognition of the importance of open data. Adopted at the first United Nations World Data Forum in 2017, the Cape Town Global Action Plan for Sustainable Development Data[b] includes open data among its key actions for innovation and modernization of national statistical systems. Open data was subsequently addressed at the 48th meeting of the United Nations Statistical Commission and has been placed on the agenda for discussion and action at its 49th meeting in March 2018. At the national level, statistical offices are embracing open data by establishing open data portals, reviewing access to information laws and policies, and including open data in national budgeting and planning processes.

The data revolution for sustainable development must be an open data revolution. When data are open, they can be freely used to improve government programs and inform citizens. There are also economic benefits when individuals and businesses can use data to create new products and services. National and international organizations have embraced the call for open data to improve development outcomes and to achieve the 2030 Sustainable Development Goals. Recognizing the potential value of open data, a broad partnership has formed around support for open data. New standards, principles, and operating guidelines have been created; open data networks and capacity developing programs have started; and monitoring of open data progress has improved.

The Open Knowledge Foundation[c] and the Open Data Charter[d] have established a working definition of open data. Open Data for Development (OD4D)[e] is building a global network of regional open data hubs, and PARIS21 now includes open data in its recommendations for National Strategies for the Development of Statistics (NSDS)[f] and in its training programs. The World Bank's Open Data Readiness Assessment (ODRA)[g] helps countries to identify gaps and opportunities. These are important advances that empower local actors to choose their own paths towards statistical development. Meanwhile, new principles and guidelines on national reporting platforms for the Sustainable Development Goals (SDGs) are intended to promote a consensus on the requirements for reporting SDGs at the country level among government agencies and partner organizations. They strongly support open data and data interoperability and encourage wider data use[h].

These are encouraging signs, but results must be measured by their impact on the availability and openness of development data. The Open Data Inventory (ODIN) is a quantitative tool for assessing the openness of official statistics. Low scores for ODIN 2017 show that many countries have not fully adopted open data policies and practices. To make further progress, there must be increased political support for open data; additional resources provided for capacity building and modernization of national statistical systems in low- and middle-income countries; and the value of data must be demonstrated through its use and impact.

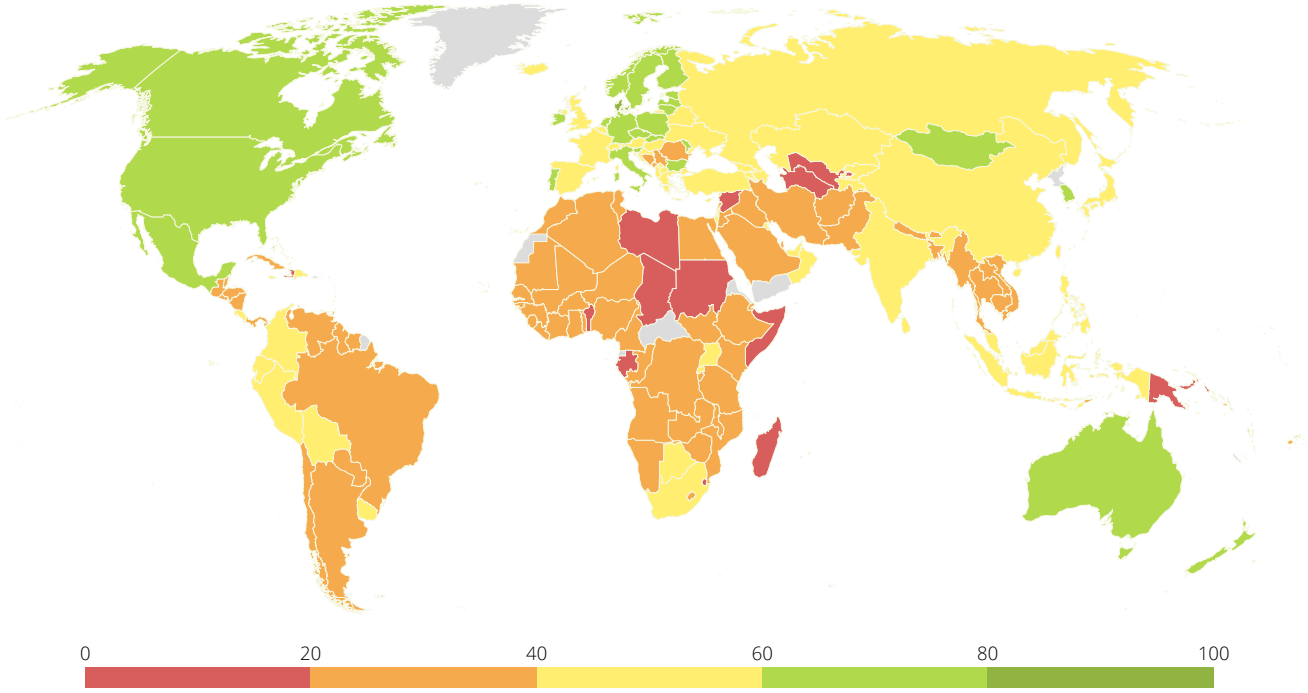
The Development Co-operation Report 2017[i] and *The State of Development Data Funding*[j] report find that funding levels for statistics are insufficient. They recommend that the international community adopt new financing strategies to provide more resources for data and capacity building. The silver lining, according to the two reports, is that bridging the gap in funding would not require a large proportional increase – from 0.3 percent to 0.45 percent of official development assistance. Also important are new approaches to statistical capacity development such as PARIS21's project on Capacity Development 4.0, which covers recommendations for better allocation of resources and coordination of donors' programs.

Beyond funding issues, more political support for open data and understanding of the value of data are needed. Minor changes in policy and better dissemination tools could open data in many countries. But uptake has been slow, as we see from ODIN 2017. We are caught in a vortex: without open data, it is difficult to demonstrate the value of data to policy makers and without recognition of the value of data, progress toward complete and open data will remain slow.

Global Findings

The Open Data Inventory (ODIN) 2017 assessed the coverage and openness of official statistical data in 180 countries, representing over 99 percent of the world's population. Assessments were carried out between June and October of 2017. All results are based on the data available from countries' principal NSO websites and linked official websites during the assessment period. Assessment results were reviewed and, when necessary, revised between October and December 2017. To ensure that datasets were not overlooked, officials from national statistical offices were invited to suggest additional data sources before their results were finalized.

Figure 1. ODIN overall scores, 2017



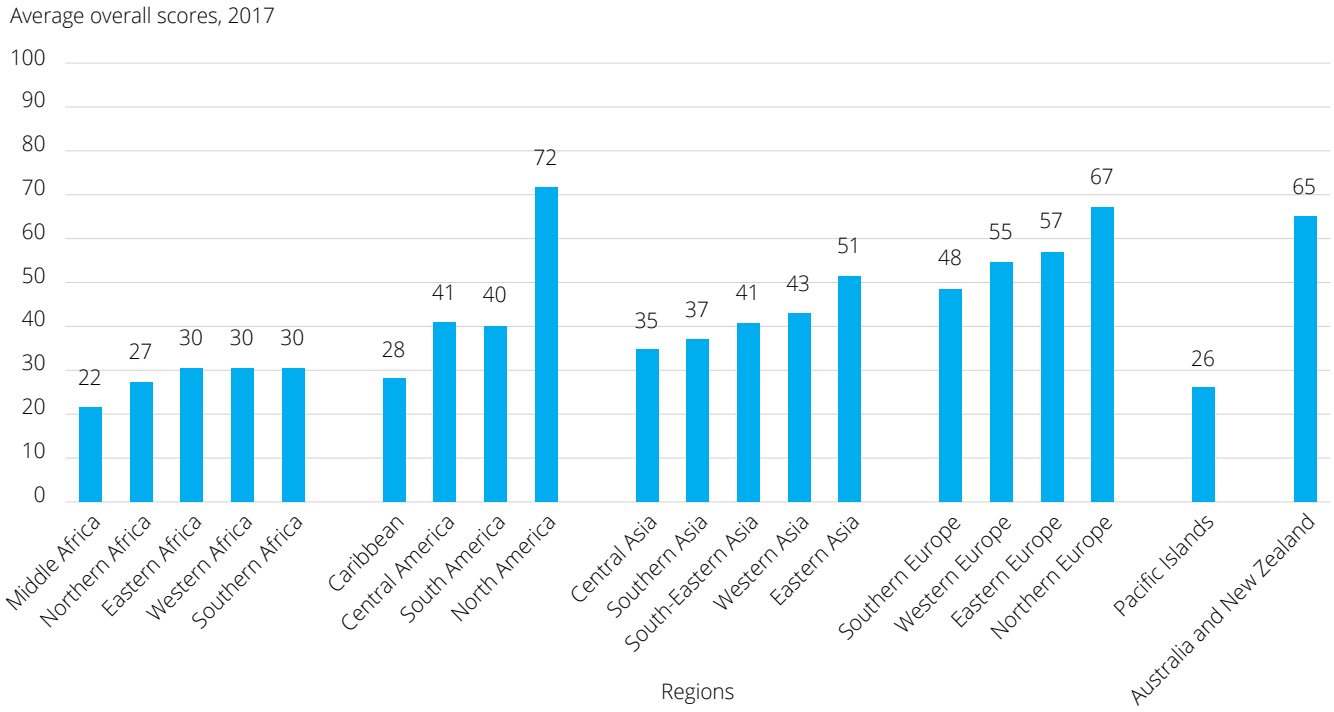
ODIN 2017 includes nearly all high-income and OECD countries and most low- and middle-income countries. The assessments analyzed datasets in 21 data categories that are the most pertinent to managing and monitoring progress on the Sustainable Development Goals (SDGs) and the social, economic, and environmental development of a country. Figure 1 shows the scores of countries included in ODIN 2017 grouped by quintiles. Countries not included are shown in gray.

ODIN scores are calculated as a percentage of the maximum score obtainable. The median ODIN country score for 2017 is 37.4, meaning that fewer than half the countries satisfy more than 38 percent of the ODIN criteria for data coverage and openness across all data categories. National scores range from 80 for Denmark to 3 for Chad.

North America and Europe have the highest average scores, while Africa has the lowest (Figure 2). But there is considerable variation between regions. In Oceania, the high scores of Australia and New Zealand are in marked contrast to the low-scoring Pacific Islands. In

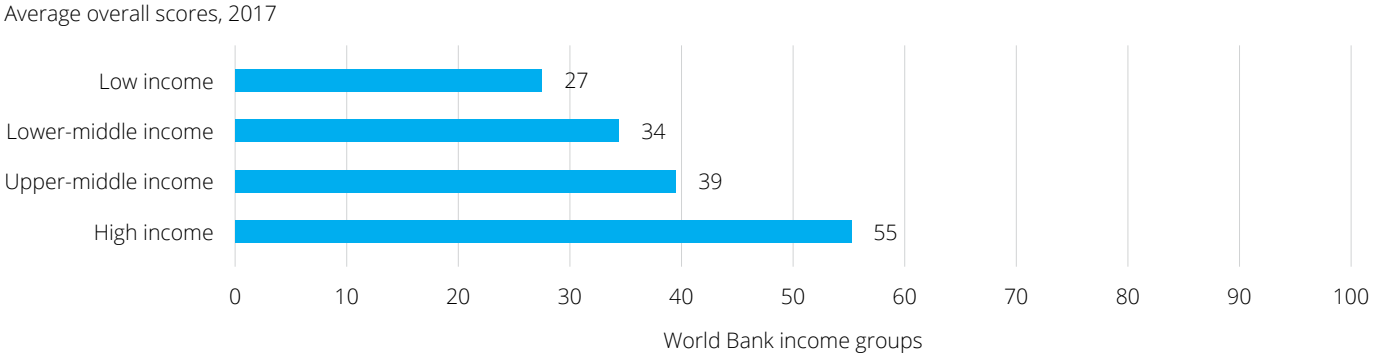
the Americas, the high scores of Canada and the United States are well above the averages of other regions in Latin America and the Caribbean. In Europe the differences are less pronounced, but Northern Europe, which includes three of the highest scoring countries – Denmark, Norway, and Sweden – has a ten-point lead over Eastern Europe. And in Asia, the average score of Eastern Asia is eight points ahead of Western Asia.

Figure 2. ODIN overall scores by region, 2017



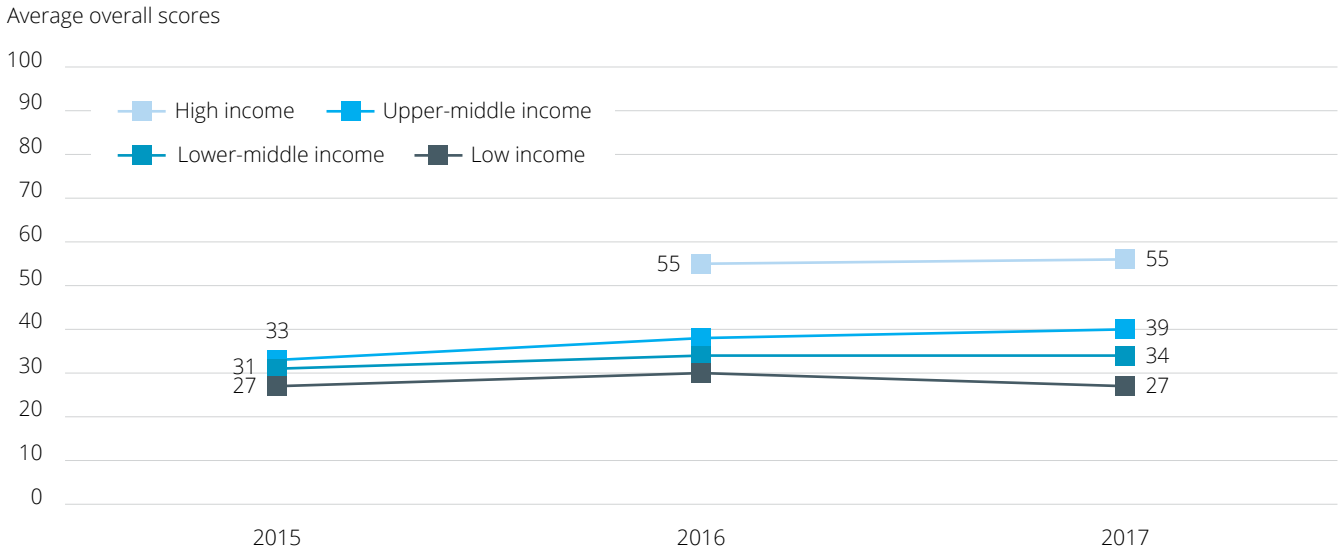
Richer countries generally, but not always, achieve higher ODIN scores. Average scores among high-income countries are twice the average of low-income countries (Figure 3). However, almost half of the 50 high-income countries included in ODIN had scores less than Rwanda's, the highest scoring low-income country.

Figure 3. ODIN overall scores by income group



There are now data from three years for most low- and middle-income countries included in ODIN. For most high-income countries there are data from 2016 and 2017. The time trends show small improvements in the scores of high-income and upper-middle-income countries, while average scores of lower-middle-income countries are unchanged from 2016 and the scores of low-income countries have fallen (Figure 4). However, changes in ODIN methodology and the addition of crime and justice statistics as a new data category in 2017 make exact comparisons over time problematic. (See Annex 2.) Nevertheless, the results of the 2017 ODIN assessments suggest that the earnest discussion of open data in international forums has not yet been matched by substantive improvements in the availability and openness of official statistics.

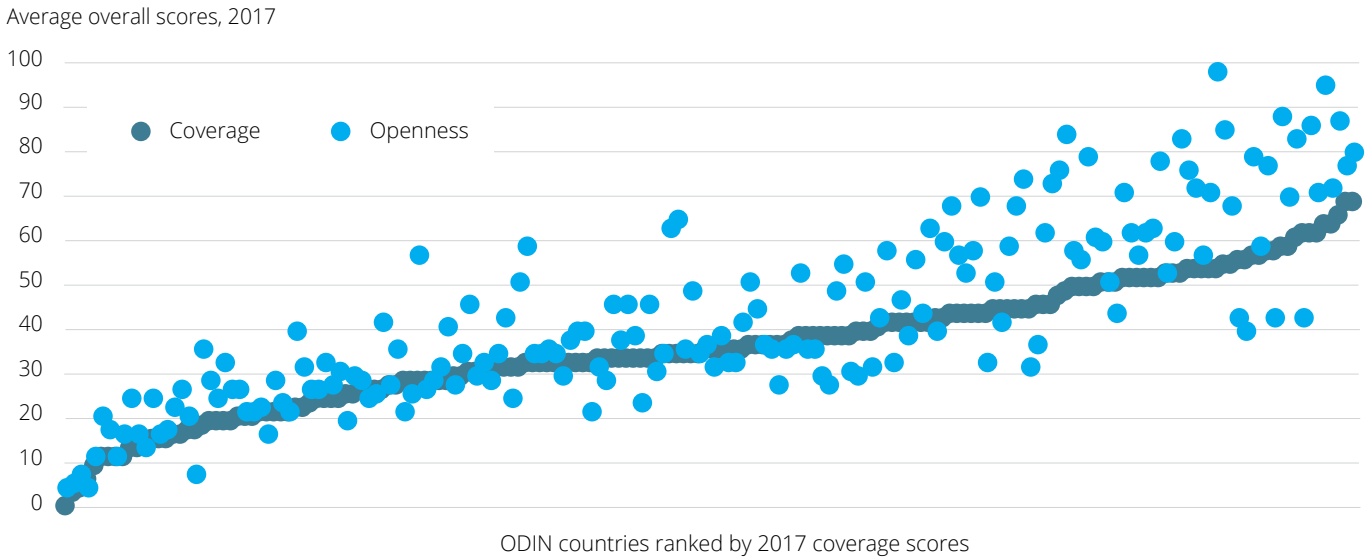
Figure 4. ODIN overall scores by income group, 2015-2017



We are caught in a vortex: without open data, it is difficult to demonstrate the value of data to policy makers and without recognition of the value of data, progress toward complete and open data will remain slow.

ODIN assessments begin by looking for a limited number of representative indicators in each of the 21 data categories. In an ODIN assessment, each data category is scored on five elements of data coverage and five elements of data openness. A country's overall score is the average of its coverage and openness scores. As shown in Figure 5, openness scores exceed coverage scores for most countries, particularly the highest scoring countries. Average scores on each element are discussed below.

Figure 5. Data coverage and openness scores, 2017



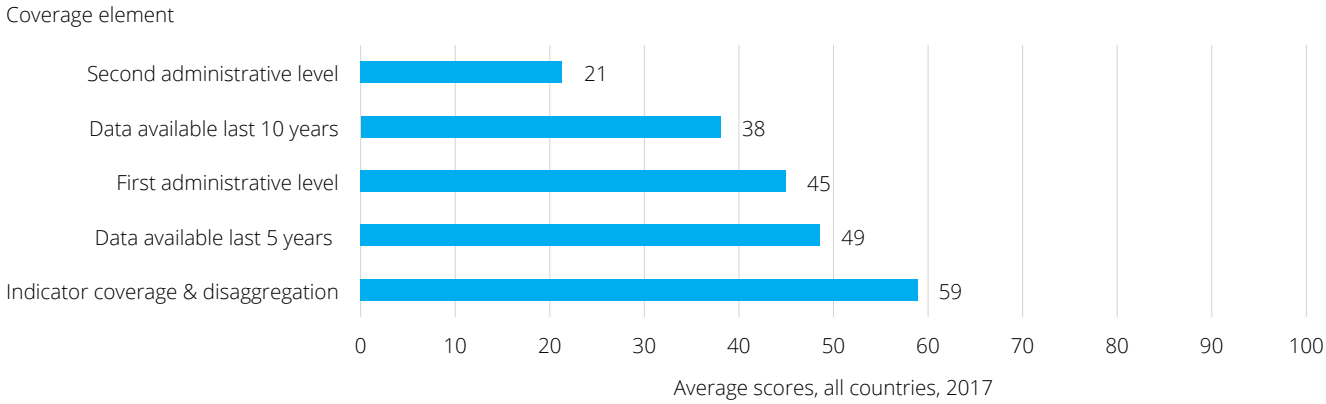
Data coverage

In 2017 the median score for data coverage was 36.5 and the average was 37.6. The maximum score was 70.2, achieved by Poland and Norway.

Data coverage scores are based on five elements: (1) representative indicators are available and are disaggregated appropriately; (2) data are available for the preceding five years; (3) data are available for the preceding ten years; (4) data are disaggregated at the first administrative level; and (5) data are disaggregated at the second administrative level.

Figure 6 shows the average scores on the five elements of data coverage for 180 countries. Scores reflect the percentage share of possible scores on the five elements averaged over the 21 data categories.

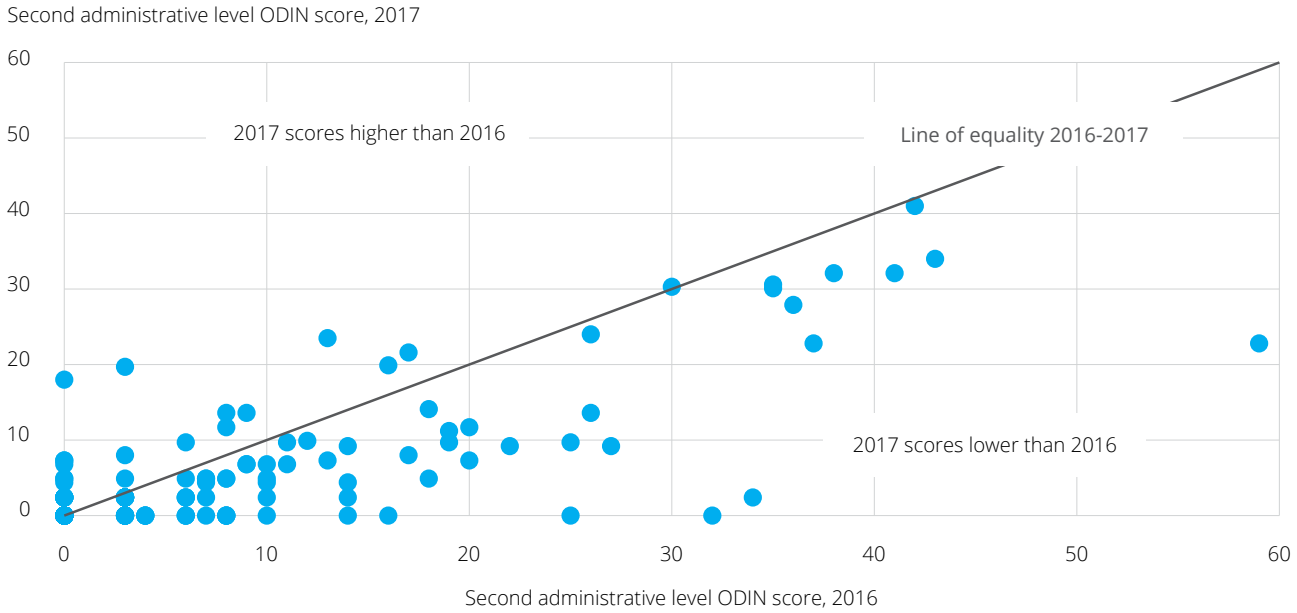
Figure 6. Scores by coverage elements



Subnational data

The lowest scoring element was the availability of data disaggregated at the second administrative level. This element relates directly to the resources of NSOs, which in many countries are very limited. The global average for this element in 2017 was just 21. Like all ODIN scores, it was measured as a weighted percentage share of the total points possible on this element.

Figure 7. Fewer indicators available at second administrative level in 2017



Scores for data at the second administrative level are generally lower in 2017 than in 2016. Figure 7 shows the distribution of scores for this element in the two years studied. Fifty countries published no data at this level in both years. In 2017, the 25 countries that improved did so by an average of 5 points. However, their progress is overshadowed by the 85 countries whose scores dropped by an average of 6.5 points.

Four countries dropped 25 or more points on this element: Lithuania (-36), Kosovo (-32 points), Romania (-32), and Latvia (-25). In these countries, scores dropped mainly because the datasets available in ODIN 2016 were no longer available in 2017. In Lithuania, for example, second administrative level scores fell in eight categories for this reason. In Kosovo, the NSO website was overhauled, resulting in more data being published in their portal. But during the migration, many datasets with second administrative level data were lost, although machine readability and other openness elements increased in the country. In Romania, website updates now require users to register to view much of their data, resulting in a decrease of scores across the board. Latvia's scores fell because its data are reported by statistical regions. Last year these were treated as administrative regions, however, they do not correspond to Latvia's designated administrative regions. ODIN bases its assessments on a country's officially designated first administrative regions and defines second administrative levels as any subdivision of the first level.

Experience from the previous two ODIN assessments and feedback from countries suggested that very small countries were unlikely to designate administrative areas below the first administrative level. Therefore ODIN 2017 does not score the second administrative element for countries with a surface area of 1,500 sq. km. or less. Fourteen countries in ODIN 2017 qualified for this exclusion: Andorra, Anguilla, Hong Kong, Kiribati, Macao, Maldives, Malta, Marshall Islands, Micronesia, Sao Tome and Principe, Seychelles, Singapore, St. Lucia, St. Vincent and the Grenadines. In all countries, regardless of their size, the following data categories are omitted from second level reporting: national accounts, government finance, money and banking, international trade, and balance of payments.

Scores for data availability at the first administrative level rose in 2017 to an average of 45. Scores for this element in 2016 were less than half of current levels. Like the second administrative level, certain data categories are not scored at the first administrative level: money and banking, international trade, and balance of payments.

Data frequency

The second lowest scoring element was availability of data in the last ten years. Since 2016, ten-year availability has dropped by an average of 9 points. This downward trend is likely the result of a handful of countries not updating their websites regularly or removing older data when redesigning websites, which was observed many times during ODIN 2017 assessments.

Five-year availability remains the second highest coverage scoring element. This result should continue to improve as countries prioritize their most recent data for publication.

Indicator coverage and disaggregation

Indicator coverage and disaggregation measures how many of the representative indicators in each data category are available on the NSO's website or through linked, official websites and whether relevant disaggregations are provided. For example, in data categories where sex disaggregation is standard, countries must disaggregate data by sex to score a full point on this element. In other categories, other disaggregations are required. A detailed description of the scoring of this element for each data category is available in the ODIN *Methodology Report*.

The scores on this element shows that approximately 59 percent of the representative indicators and their disaggregations are available, a decrease of 3 points from 2016. Because of the addition of a new data category and changes in methodology, scores from earlier years are not strictly comparable with 2017. The highest score on this element in 2017 is 93 for Norway; the lowest score is 4 for Chad. The data category with the best indicator coverage is government finance, with a score of 82; and the worst is energy use, with a score of 31.

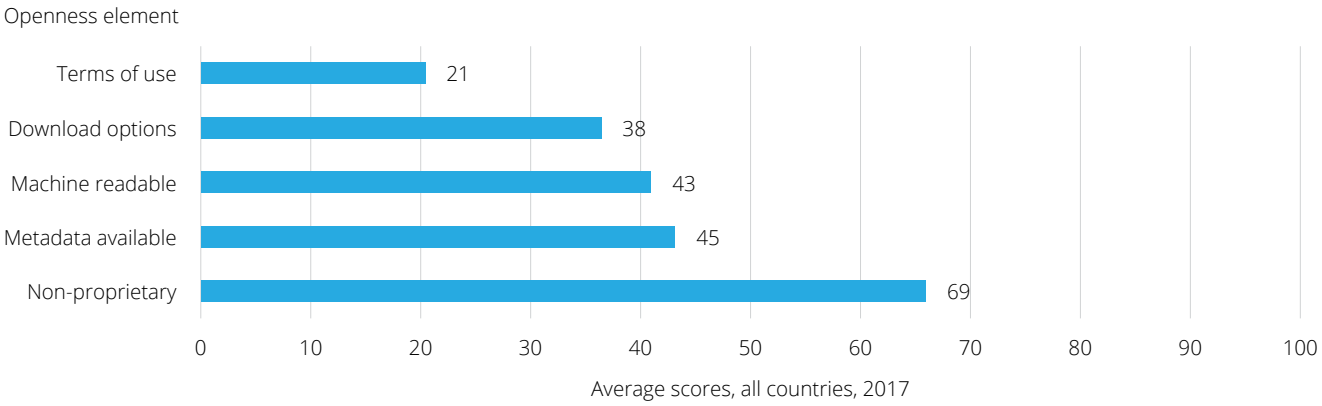
Data openness

In 2017 the median score for data openness was 37.5 and the average score 43.2. the maximum score was 98.1 achieved by the Netherlands.

Each openness score is composed of five elements that correspond to components of the Open Definition[k]: (1) data are machine readable; (2) data are published in a non-proprietary format; (3) download options exist such as bulk download and user-selection or an application programming interface (API); (4) metadata are available for the datasets; and (5) open terms of use are clearly stated.

Figure 8 shows the average scores on the five elements of data openness for 180 countries. The highest scoring element shows that on average 69 percent of representative indicators were published in non-proprietary formats. Six countries scored 100 on this element: Canada, Estonia, Mongolia, Netherlands, Norway, and Slovenia.

Figure 8. Scores by openness elements, 2017



Terms of Use

The lowest scoring element was the availability of an open terms of use. Terms of use inform users how they can use the data. Ideally, every data user should be aware of the terms of use governing the dataset they have accessed. But in 73 countries — almost half the countries included in ODIN 2017 — no terms of use were provided for any of the sources of data assessed in ODIN. Because ODIN assessments follow links provided from the NSO website, multiple and often conflicting terms of use were sometimes encountered. Multiple terms of use cause confusion for users. Four countries were found to have more than five terms of use: Spain (7), New Zealand (7), Hong Kong (10), and the United States (11).

ODIN assessments score terms of use as open, semi-restrictive, restrictive, or not available. Table 1 shows some of the common semi-restrictive and restrictive clauses found in countries where at least one statement of the terms of use existed. (Because some countries publish multiple terms of use for different data categories, the numbers shown in Table 1 exceed the number of countries.) If multiple, semi-restrictive clauses were found, the terms of use were classified as restrictive.

Table 1. Examples of terms of use

Semi-restrictive clauses	
Prohibits misleading use	31
Onerous attribution	5
Vague language	30
Restrictive clauses	
Noncommercial provision	53
Prior permission	30
Other restrictions	4
Number of countries with no terms of use	73
Number of countries with an open terms of use	60

Thirty-one terms of use found during ODIN assessments contain a clause that prohibits the use of data to "mislead" others. "Misleading" clauses are treated as semi-restrictive because they are unclear and may be enforced arbitrarily to discriminate against users.

Another type of semi-restrictive clause requires an onerous attribution statement, such as requiring users to publish large amounts of metadata or other technical notes with the data. Terms of use are also classified as semi-restrictive if they are not explicitly restrictive but considered too vague to be considered open, as was the case in 30 instances. As shown in Table 1, misleading clauses and vague language were the most common reason for classifying terms of use as semi-restrictive, thus receiving only half the maximum score.

Restrictive clauses occurred more frequently than semi-restrictive. Noncommercial provisions were the most frequent form of a restrictive clause encountered in ODIN 2017 assessments. As explained by the Open Data Institute, "A noncommercial provision is problematic primarily because of a lack of clarity around what constitutes 'commercial' usage."[l] In some cases, a limitation to noncommercial use can be interpreted as allowing personal use only, as happened in a 2014 German court case[m]. The second most common restrictive type of terms of use required prior permission before all or some element of use. This occurred in 30 instances.

Fully open terms of use must specify that data can be used, distributed, or modified without charge and for commercial and noncommercial purposes with, at most, an obligation to attribute data to the original source. Of the 39 countries with open terms of use for at least one source of data, only two countries, the Netherlands and Australia, had open terms of use covering all 56 indicators in the 21 data categories assessed in ODIN.

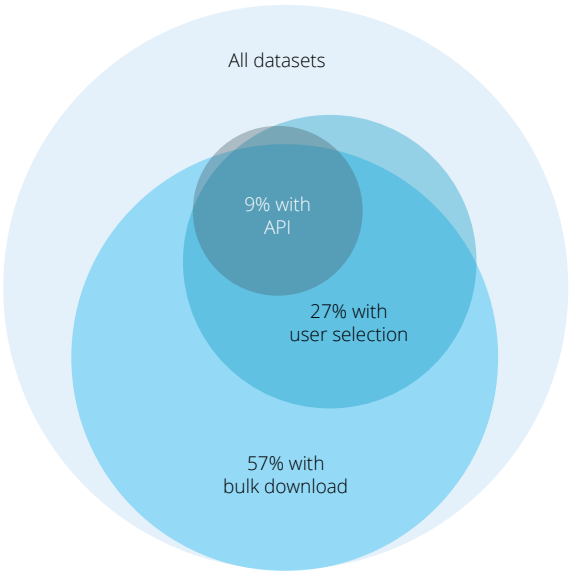
Even when the intention is to provide free and open access to data, the lack of terms of use causes uncertainty and therefore discourages further use of the data. For many countries, the easiest and least costly way to raise their ODIN score by up to 10 points would be to adopt a Creative Commons 0[n] (CC0) or a Creative Commons Attribution (CC BY) 4.0[o] license or similar license. For more information about terms of use scores, please see the ODIN 2017 *Methodology Report*.

Download options

The second lowest scoring element was the availability of download options. In ODIN 2017, the methodology for this element was adjusted, leading to an overall increase in score for some countries. (More about this change can be found in Annex 2.) However, even with these increases, overall scores remain low. Figure 9 shows the percentage of datasets in ODIN with any of the three download options that ODIN assesses and their overlaps. Notably, a few offered all three options.

Figure 9. Download options availability, 2017

Share of datasets with download options, 2017



The most common option is a bulk download. In all but one country, bulk downloads are made available for at least one dataset – approximately 57 percent of the datasets assessed in ODIN. Bulk downloads are a key component of the Open Definition[p], which requires data to be "provided as a whole . . . and downloadable via the internet." The second most common option is a user-selected export option, which allows users to customize the dataset before downloading. User-selection options are available in 62 percent of countries for 27 percent of the datasets assessed in ODIN. An application programming interface (API) is the least commonly seen download option with only 12 percent of countries offering one for 9 percent of all datasets assessed. According to ODIN methodology, countries only need to have an API or user-selection option in conjunction with a bulk download for a full score on this element. In sum, most countries offer download options, but they do not offer them for all the data they publish.

Machine readability

Machine-readable file formats such as XLS, XLSX, CSV, TXT, or JSON allow users to easily process data using a computer. The average score of 43, across all countries and data categories, is symptomatic of a continuing reliance on PDF files to publish images of paper publications. In 25 countries, data are exclusively published in PDF files. Countries in Eastern and Western Africa are the most frequent offenders.

When data are made available in formats that are not machine readable, users cannot easily access and modify the data, which severely restricts the scope of the data's use. In many cases PDF versions of datasets within reports can be useful to users, as the text in conjunction with the tables gives context and explanation to the figures which helps less technical users understand the data. Because of this, ODIN assessments do not penalize countries for making datasets available in PDF or other non-machine-readable formats, unless these formats are the only option for exporting data.

Metadata availability

Machine-readable file formats such as XLS, XLSX, CSV, TXT, or JSON allow users to easily process data using a computer. The average score of 43, across all countries and data categories, is symptomatic of a continuing reliance on PDF files to publish images of paper publications. In 25 countries, data are exclusively published in PDF files. Countries in Eastern and Western Africa are the most frequent offenders.

When data are made available in formats that are not machine readable, users cannot easily access and modify the data, which severely restricts the scope of the data's use. In many cases PDF versions of datasets within reports can be useful to users, as the text in conjunction with the tables gives context and explanation to the figures which helps less technical users understand the data. Because of this, ODIN assessments do not penalize countries for making datasets available in PDF or other non-machine-readable formats, unless these formats are the only option for exporting data.

Non-proprietary formats

Publication in non-proprietary formats was the element with the highest average score this year and has been on the rise since 2015. Non-proprietary formats are important because they allow users to access data without requiring the use of a costly, proprietary software that may prevent some users from accessing the data. Because the PDF format is non-proprietary, countries publishing PDF files could receive full marks for this element, even when they are marked down for not providing machine-readable files. The availability of XLSX files, has also increased, likely because it is the default format used by newer versions of Microsoft Excel (2007 and onward). The XLSX format is in the public domain. However, many countries still publish data in XLS files. Although XLS files can be opened with some open source software, such as OpenOffice and LibreOffice, the format is based on BIFF (Binary Interchange File Format), which has its encoding published, but its use is restricted by various licenses.

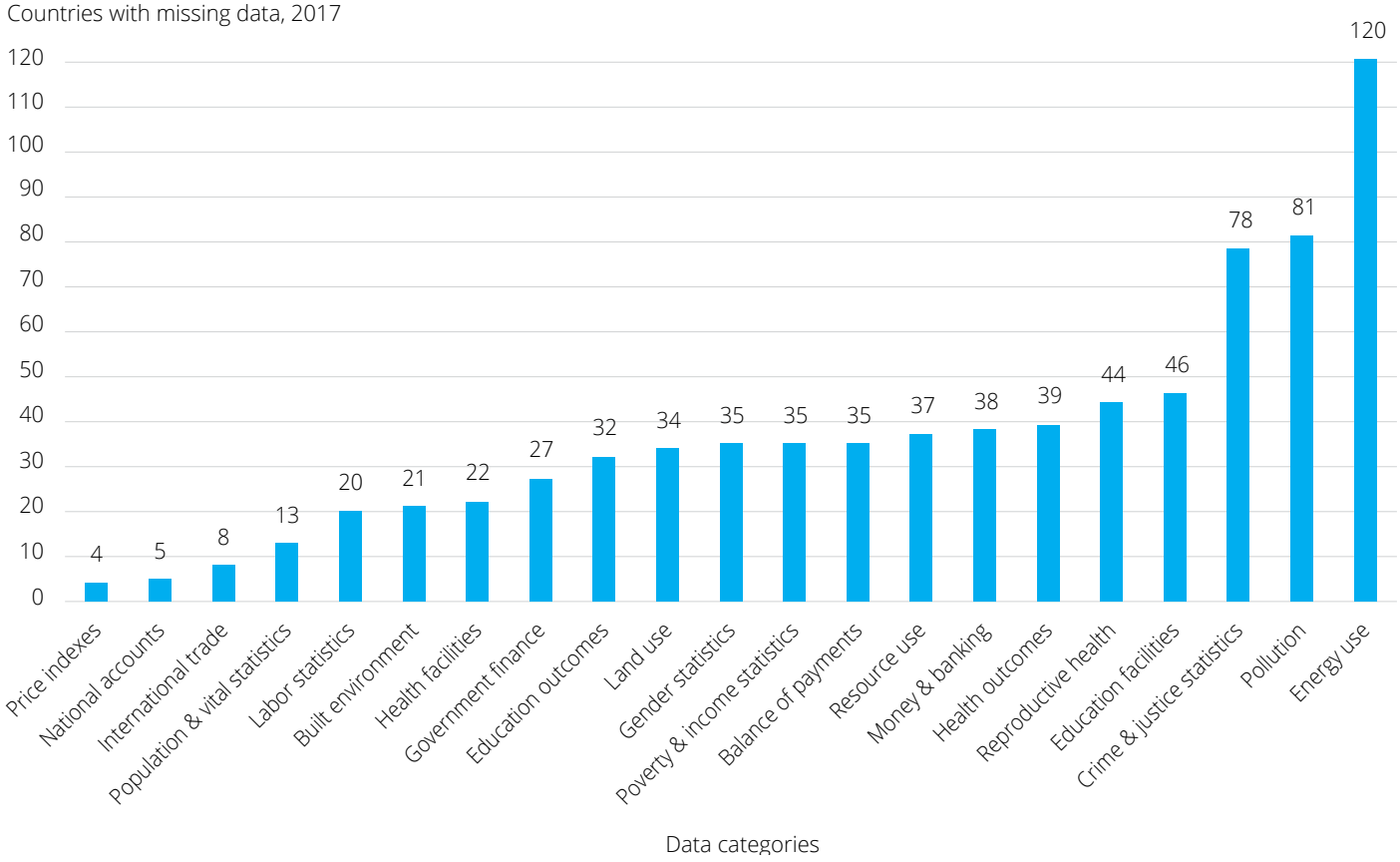
Data gaps and open data

ODIN assesses the coverage and openness of 21 data categories, but only if the representative indicators for that category can be found on the NSO website or on a linked official website. Without data, no assessment can be made, so a country that fails on the first element of coverage—indicator coverage and disaggregation—fails on all elements of coverage and openness and receives zero points for that category. Only 24 countries published data in all 21 ODIN data categories in 2017, while half of the countries included in ODIN lacked data in four or more categories, and 32 lacked data in eight or more. People seeking data in those countries are likely to be disappointed.

Which categories are most often missing? Figure 10 shows the number of countries for which data could not be found in each data category. Energy use statistics were the least reported data in ODIN 2017: 120 out of 180 countries reported none of the representative

Figure 10. Missing data categories

Countries with missing data, 2017

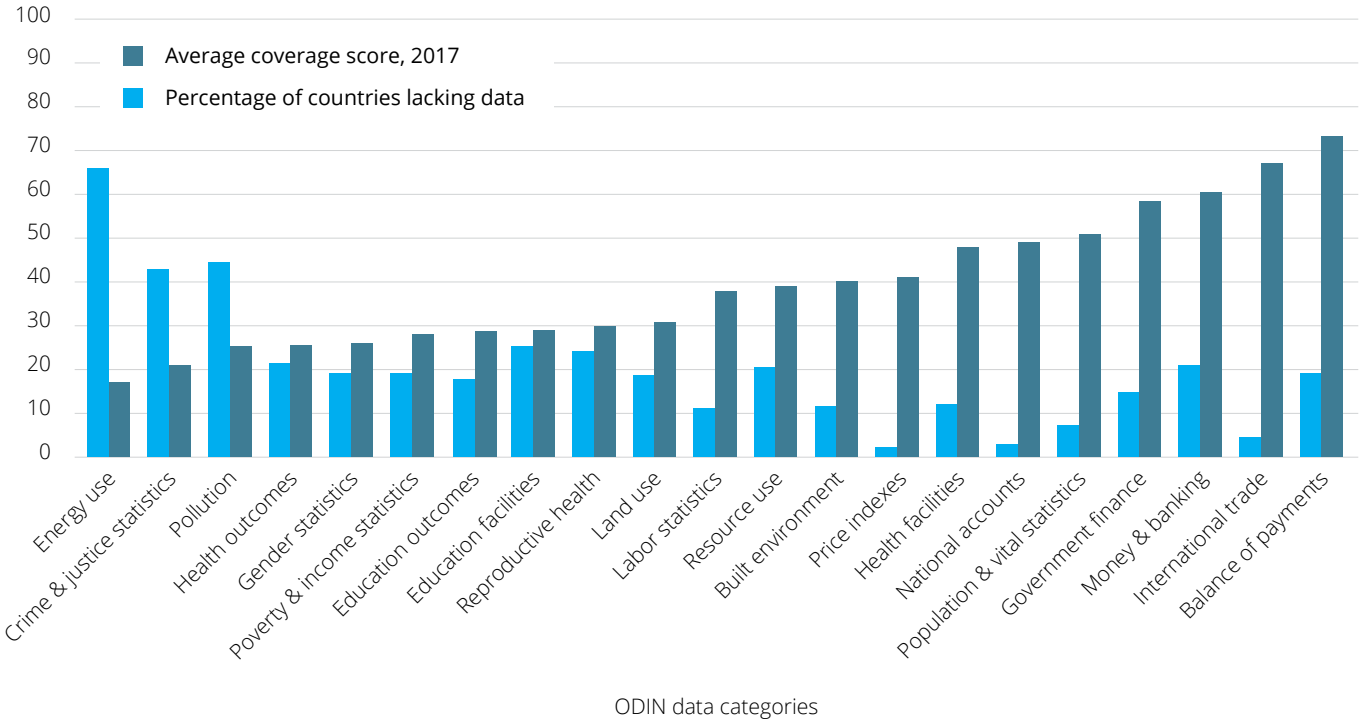


indicators in this data category. Pollution statistics (81) and crime and justice statistics (78) had the next highest number of gaps, while price indexes (4), national accounts (5), and international trade statistics (8) had the fewest. A similar pattern was observed in previous ODIN assessments.

For many countries included in ODIN, low scores reflect an absence of data as much as they do their failure to observe standards for open data or to provide timely coverage at the national or subnational levels. Because the countries' overall coverage and openness scores are the weighted averages of scores for each data category, countries with missing data categories will necessarily have lower overall scores.

Figure 11 compares the percentage of countries with no data in each category and the average coverage scores of all countries. As expected, categories with many gaps tend of have the lowest average scores. Energy use is an obvious example, but there are exceptions. Some categories of data, when they are available, are better reported than others. Take resource use as an example. Thirty-seven countries (21 percent of ODIN countries) published no data in this category and the average coverage score stands at 39, tenth highest

Figure 11. Missing data lower coverage scores



among 21 data categories (although the highest of the five environmental categories). The same proportion of countries lack data on money and banking statistics, but this category has the third highest coverage score at 61.

Balance of payments and international trade statistics illustrate a different contrast: both have high coverage scores but much different patterns of data gaps.

For many countries included in ODIN, low scores reflect an absence of data as much as they do their failure to observe standards for open data or to provide timely coverage at the national or subnational levels.

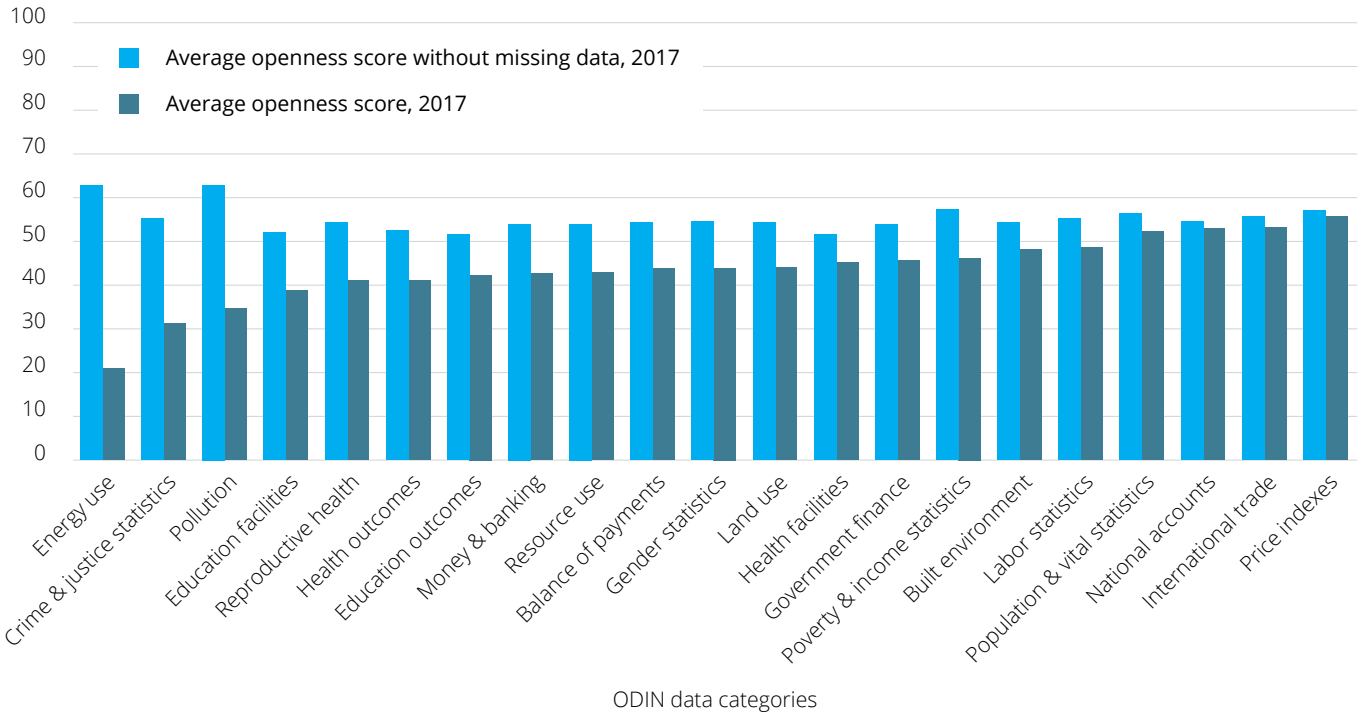
Linking openness and coverage

Without data there cannot be open data. A country might satisfy the requirements for open data for the data categories they publish, but still receive an overall low openness (and coverage) score, because they receive no scores for missing data categories. While some countries can make progress in ODIN by opening the datasets they already publish, eventually their scores will stagnate if low coverage is not addressed.

Figure 12 illustrates the difference between openness scores when missing data categories are included (the standard ODIN score) and when they are excluded. In some categories, such as energy use, pollution, and crime and justice statistics, average openness scores increase dramatically when countries without data are excluded, because, many countries do not publish any data on these topics. The average score excluding countries with no data in these categories therefore reflects the openness of countries that do publish data.

While this is not an unbiased estimate of the scores all countries would obtain if they published data, it does demonstrate the extent to which coverage gaps act as impediments to data openness. It also demonstrates the distance even countries with published data must go to achieve fully open data.

Figure 12. Openness scores with and without missing data



Regional Results

Scores across regions

Countries included in ODIN 2017 come from 20 regions defined by the United Nations. As shown in Table 2, Europe has the highest average overall score, but North America (the United States and Canada) has the highest regional score. Notable regions outside of North America and Europe include Australia and New Zealand, which scored the 3rd highest in overall scores and the 2nd highest in openness. Eastern Asia also performed well, outranking some European regions in both overall scores and openness.

Table 2. Scores by region, 2017

Africa			
Eastern Africa	30.4	30.0	30.8
Middle Africa	21.6	19.1	23.8
Northern Africa	27.2	30.6	24.1
Southern Africa	30.5	29.6	31.3
Western Africa	30.5	25.7	34.9
Americas			
Caribbean	28.0	26.4	29.7
Central America	40.9	37.9	43.7
North America	71.7	64.2	78.7
South America	40.1	39.1	41.0
Asia			
Central Asia	34.8	36.1	33.6
Eastern Asia	51.3	45.9	56.3
South-Eastern Asia	40.7	37.1	43.8
Southern Asia	37.0	38.4	35.8
Western Asia	42.6	39.8	45.2
Europe			
Eastern Europe	57.0	54.9	58.8
Northern Europe	67.2	56.6	77.0
Southern Europe	48.5	44.1	52.4
Western Europe	54.7	44.5	64.1
Oceania			
Australia and New Zealand	65.2	49.7	79.5
Pacific Islands	26.0	27.6	24.1

Regional scores by major categories

ODIN data categories are aggregated into three major categories: social, economic and financial, and environmental statistics. There are nine social data categories; seven economic and financial data categories; and five environmental data categories.

In computing aggregate ODIN scores over all 21 data categories, scores are weighted so that the average score of each major category has equal weight in the overall score. Within each major category the constituent data categories receive equal weighting.

Figure 13. Economic and financial statistics score highest in all regions

ODIN overall scores by major category, 2017

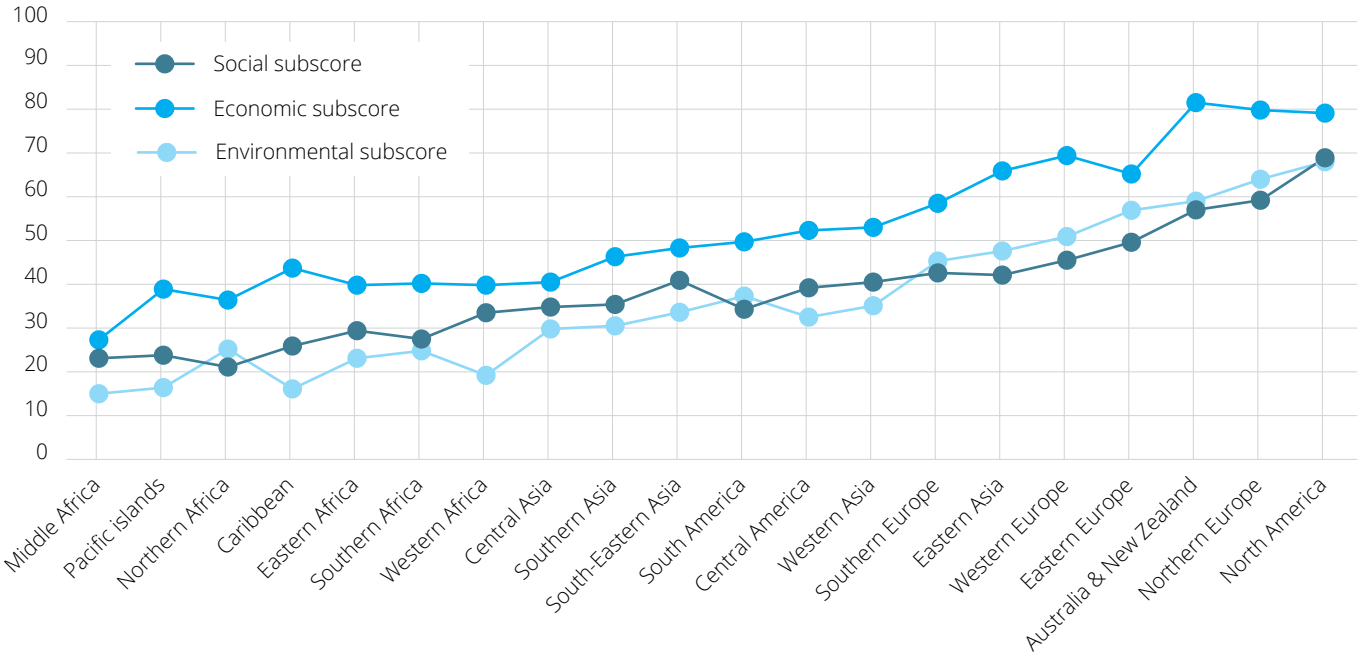


Figure 13 shows the average scores for social, economic, and environmental statistics by region, sorted by their overall ODIN score. On average, countries score highest on economic statistics, lowest on environmental statistics, and slightly better on social statistics. The three most available data categories are price indexes, national accounts, and international trade statistics, all from the economic and financial statistics group. The addition of crime and justice statistics as a new data category in social statistics has further lowered scores in this group. None of the countries in Northern Africa, for example, published data in this category. Energy use and pollution statistics, in the environmental group, along with crime and justice statistics are the least available data categories in the ODIN 2017 database.

As we have seen, data gaps are generally associated with low scores. In Europe, the three lowest scoring categories are health outcomes, reproductive health, and crime and justice statistics. In North America the lowest regional category was money and banking, which occurs because money and banking statistics are not available on the United States' FedStats data portal. In Northern Africa the lowest scoring data category is crime and justice statistics. In all other regions the lowest scoring data categories are energy use or pollution. In some regions, every country received a score of zero in the categories of energy use or pollution.

Country results

The top ten

In 2017, the top ten performers in ODIN changed considerably from 2016. Four new countries climbed the ranks: the Netherlands, Bulgaria, Mexico, and Slovenia, displacing the Czech Republic, Lithuania, Estonia, and the United States from the top ten in the previous round.

Table 3. ODIN rankings compared

1	Sweden	81	Denmark	80
2	Czech Republic	79	**Netherlands**	**78**
3	Norway	78	Sweden	77
4	Poland	78	Poland	75
5	Lithuania	77	Canada	75
6	Denmark	76	Finland	75
7	Estonia	76	Norway	74
8	Canada	75	**Bulgaria**	**73**
9	United States	75	**Mexico**	**71**
10	Finland	72	**Slovenia**	**69**

The rankings of some countries improved because they published data for indicators newly introduced in 2017. These include the **Netherlands**, which between 2016 and 2017, climbed 10 spots and added 8 points to its overall score. Interestingly, the Netherlands also has a difference of 42 points between its coverage and openness scores. With a near perfect openness score, the country ranks number one in openness across all 180 countries assessed in ODIN 2017. The Netherlands high openness score largely accounts for its overall high ranking but overshadows coverage deficiencies. The Netherlands scores well for the number of indicators it publishes and the frequency with which it publishes them, but it publishes almost no data at the subnational level. The lack of subnational data in the Netherlands is surprising given its high performance on other elements. For reference, 106 countries publish more data at the first administrative level than the Netherlands. By addressing these coverage gaps, the Netherlands could become the world's leading open data champion.

Mexico moved into the top ten in 2017 by maintaining its high scores despite the introduction of new indicators and stricter openness criteria in the ODIN methodology. In ODIN 2016, Mexico was a high performer, ranking 16th globally and outranking all countries in the Americas except for the US and Canada. In 2017, Mexico moved to 9th place globally, ahead of the United States.

Another newcomer to the top ten gained ground after making progress in openness: **Bulgaria** had the greatest advance between 2016 and 2017, jumping 19 spots and 14 points overall. Though its data coverage score is little changed, the openness of its data increased by 30 points. In 2017, our research found the NSO made greater use of its data portal as the main dissemination platform, which led to greater accessibility for users, as well as an increase in the amount of data made available in machine-readable and non-proprietary formats. Additionally, the NSO adopted a new terms of use policy, which, although not fully open, contributed to the higher openness score.

Slovenia, on the other hand, made little movement, increasing its score by only one point. However, ODIN methodology changes in 2017 worked in Slovenia's favor and this, along with its updated terms of use for its NSO website (which is fully open), led to its progression from 14th to 10th place globally.

For some countries that fell from last year's top ten, the lack of data on new indicators introduced in ODIN 2017 contributed to their decline. However, many countries also lost points because of stricter guidelines regarding metadata, terms of use, and adherence to international standards. Regardless of the reason, all countries in ODIN 2017 were held to the same high standards.

The decrease in the coverage score for the **Czech Republic** was accompanied by a 14-point decrease in openness. These changes were caused by the country's failure to meet higher standards for metadata and terms of use. In 2017, vague clauses in its terms of use stating that data must be used in "appropriate" or "non-misleading" ways were classified as semi-restrictive, resulting in a lower score. Additionally, some datasets did not meet all three criteria for complete metadata. The United States dropped to 12th place globally due to its failure to meet higher standards for metadata and terms of use. Because the **United States** does not have a unified statistical office, its data are published across several websites. This results in some datasets having very thorough metadata and open terms of use, while others fall short, depending on the agency that publishes them. In addition, some of the new indicators introduced in 2017 could not be found, which reduced United States' coverage score. **Estonia's** ranking fell for similar reasons, receiving a lower score for terms of use because of the inclusion of a noncommercial use provision.

Perhaps the largest fall from the top rank was **Lithuania's**, which ranked 5th globally in 2016 and had the highest coverage score among all countries in ODIN. In 2017 its ranking fell to 17th due to a 21-point decrease in their coverage score. The reasons for this vary by data category. In education and health statistics, datasets recorded in 2016 no longer qualified for use in ODIN, due to methodology changes that apply stricter international standards. In other categories, scores decreased because data on newly introduced indicators were not published. However, many scores decreased in 2017 for an entirely different reason: many datasets previously recorded in ODIN 2016 were no longer published and replacement datasets were less comprehensive, lacking sufficient subnational data. Additionally, the NSO's terms of use policy was removed from the website. The only reason their openness score did not see a noticeable drop was because methodology changes concerning other openness elements balanced the effect.

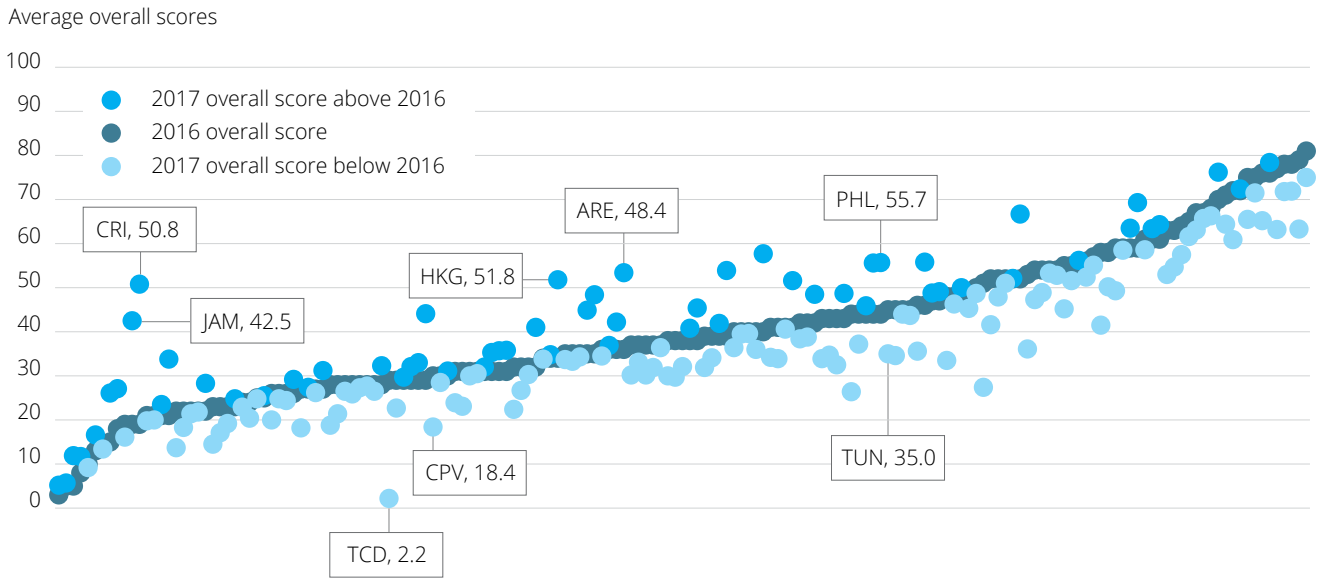
Country profiles: ups and downs

Every year a group of countries makes a special effort to increase the openness and coverage of their statistics, whether that means making more datasets public, converting data published in PDFs to machine-readable formats, or building a new data portal altogether. Some countries have done this in consultation with Open Data Watch, while others have made independent efforts towards the same goals. Below is a summary of some of the countries' initiatives that were apparent in ODIN 2017, as well as some who made steps in the opposite direction.

Sources of improved scores

In 2017, the Statistical Institute of **Jamaica** (STATIN) took significant steps to modernize its statistical system and adopt open data as a central element of its new National Strategy for the Development of Statistics (NSDS). Overall, Jamaica's score rose 25 points since 2016. The main driver of this increase was the dramatic shift in openness, which caused its score to rise by 39 points. To achieve this, STATIN adopted a fully open terms of use policy. Although they did not adopt a standard open license, they did use a CC BY 4.0 license as a model for their own, adding acceptable provisions to suit their country context, thus proving there are many ways to develop open terms of use policies. Open Data Watch and PARIS21 provided technical assistance on open data to Jamaica. Many of the recommendations were adopted immediately. STATIN took additional steps to integrate other national data sources into their website, facilitating the ease of finding datasets for users. For instance, STATIN now provides links to indicator specific pages on the Ministry of Economy and Central Bank websites. Additionally, metadata are now made available

Figure 14. Progress and regression, overall ODIN scores 2016-2017



at the indicator level on the same page as the datasets and clearly labeled. Overall, Jamaica's efforts are a great example of how taking a few steps can lead to large increases in the openness of data already published and improvements in usability and accessibility.

Another country that made incredible progress in 2017 is the **United Arab Emirates** whose openness score increased by 32 points. The United Arab Emirates took a different approach than Jamaica by investing resources in the creation of a new open data portal, rather than making updates to its original website. During the creation of their portal, the Federal Competitiveness and Statistics Authority reached out to Open Data Watch for advice. Their portal now hosts 537 datasets, all which are made available in machine-readable and nonproprietary formats under a single, open terms of use policy.

Like the United Arab Emirates, the **Philippines** also launched a new open data portal in March 2017. This year's ODIN was the first assessment to capture improvements since the launch. In ODIN 2017, the Philippines' score increased by 14 points and their openness score increased by 32 points. Their new portal encompasses most of ODIN's five openness criteria, including making data available for export in machine-readable and nonproprietary formats and through bulk download. Currently the data portal hosts 99 datasets under a single terms of use license. The portal boasts some impressive features, including an API. However, there is room to improve, including making its terms of use fully open and adding data selection options for non-technical users prior to exporting data.

Costa Rica's score increased by 34 points, the largest of any country in ODIN 2017. Costa Rica has adopted a Creative Commons Share Alike 4.0 license and published numerous new datasets on their NSO website and linked websites. In ODIN 2017, nine additional agency websites were used in their assessment, including the Ministry of Health, Ministry of Finance, the National Institute for Women, and the Central Bank, among others. Some datasets from linked sites were newly published in 2017, while others may have been published earlier but were difficult to find. Making the NSO website the main national website or portal for dissemination of official statistics, with links to other ministries websites, is a recommended strategy to increase accessibility. Creating a central location for official statistics also eliminates confusions caused by multiple sites and barriers to access due to different data organization schemes.

Reasons for losses

Although many countries' scores decreased because they did not meet stricter standards for metadata or indicator definitions, some countries' scores decreased due to deliberate actions made since 2016. As already discussed, Lithuania's terms of use score fell when they removed their policy from the website. However, some countries changes were so extensive that they led to large downgrades in their overall scores. These changes mostly involved website overhauls.

For example, **Chad's** NSO website has undergone changes since 2016 that not only affected the speed of the website, but also the availability of data. Most of the datasets used in ODIN 2016 were taken from a handful of PDF reports. However, now those reports are no longer accessible from the NSO website, though the direct links are still operational from the ODIN 2016 records. For instance, the report entitled, *Rapport final Enquête Démographique et de Santé et à Indicateurs Multiples au Tchad (EDS-MICS 2014-2015)*, was cited numerous times in 2016, yet when researchers try to access the page through the NSO website, the link was not operational. Based on our assessment from 2016, we know that these reports are still uploaded on the NSO website server, but if ODIN assessors cannot access them during the research period, the data are classified as not available. Assessors attempted to access these data multiple times from June to December of 2017 and again during the writing of this report in 2018 with no success.

Similarly, **Cabo Verde** and **Tunisia** faced issues with the data portals that housed much of their data used in ODIN 2016. In Cabo Verde, the NSO website is linked to their www.Africadata.org portal, which was developed by the African Development Bank (AfDB). However, the maintenance of these portals has been discontinued for all countries for unknown reasons in favor of other portals AfDB develops, such as the Open Data for Africa (ODA) portal. Cabo Verde also has an ODA portal, which was cited in ODIN 2016, but most of the data available on the previous portal have not been transferred, including most of the data on environmental indicators.

Tunisia's data portal was also not operational during the ODIN 2017 assessment cycle. Despite this, coverage scores did not suffer greatly because data were found elsewhere, principally in Statistical Yearbook publications. However, openness scores fell by 12 points, largely because the machine readability and download options for the data decreased. As of February 2018, the portal is online again, but due to the outage between June and December 2017 (ODIN 2017's research period), any adjustments to scores will not be implemented until ODIN 2018's research period.

Unlike the previous examples, **Romania's** drop of 23 points between 2016 and 2017 is not due to website outages or broken links, but rather a change in the access protocol. Some countries utilize registration procedures for users who want to download large amounts of data or have access to additional portal features such as graphical analysis. However, sometime after the 2016 ODIN assessment, Romania's NSO began to require the registration of users to access even basic datasets. Barriers to access, such as payment, registration, or subscription do not conform to standards for open access. Therefore, any data that required registration were not included in ODIN assessments.

Special Studies

Gender data

The lack of gender data remains a serious impediment to the implementation of policies to achieve gender equality and the empowerment of women. The gaps in gender data have been documented[q] and new approaches proposed[r]. But progress in filling gaps has been slow.

Gender data refers to data that are disaggregated by sex or that measure conditions and events that have a bearing on the welfare of women and their children. These data are used to identify specific needs, formulate policies to address shortcomings, and monitor their impact on women and their families. Goal 5 of the SDGs makes a commitment to achieve gender equality and empower all women and girls. It specifies nine targets measured by fourteen indicators. Nine other goals include thirty-nine indicators that have been identified as relevant to monitoring the status of women, and an additional thirty-three indicators specify disaggregation by sex and other attributes. ODIN includes seven data categories containing twenty-three indicators that are sex disaggregated or apply specifically to women.

Eighteen of these indicators are included in the SDGs. Taken together, they provide a measure of the openness and availability of gender statistics from NSO websites.

To measure the availability and openness of gender data, a gender data index was constructed using the custom weighting function now available in ODIN 2017. Weights were assigned in proportion to the number of gender-specific indicators in each data category. Although the reproductive health category contains only two indicators that are specifically disaggregated by sex (infant and under-5 mortality rates), the remaining four indicators (maternal mortality, fertility rate, contraceptive prevalence rate, and adolescent birth rate) are all pertinent to women's health.

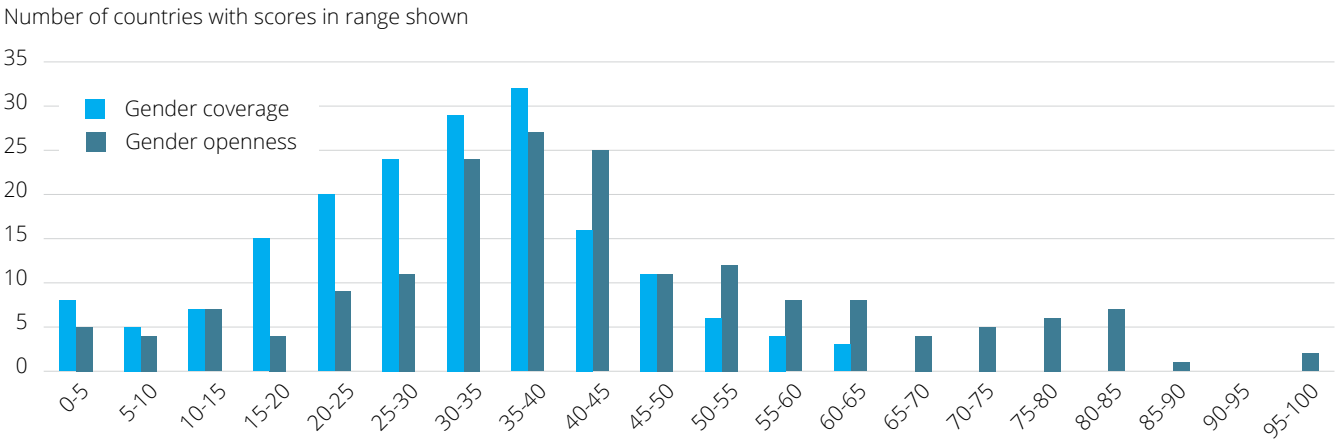
The median overall score for the gender index was 36.4, 0.9 less than the median score across all data categories. The median coverage score was 32.4, well below the all categories median of 36.5, while the median openness score was 39.1, 1.6 points higher than the all categories median score. The evidence shows that gender data are less available than other data, although they are more likely to be available as open data. The distributions of coverage and openness scores for the gender data index are shown in Figure 15.

Table 4. Gender data index, 2017

1. Population & vital statistics	3	13	13
3. Education outcomes	3	13	32
5. Health outcomes	3	13	40
6. Reproductive health	6	26	45
7. Gender statistics	3	13	35
8. Crime & justice statistics	3	13	79
11. Labor statistics	2	9	22

No country achieved a perfect score on the gender data index for coverage or openness. Among the eight countries with the highest proportion of available indicators — Cyprus, Azerbaijan, Denmark, Norway, Moldova, Guatemala, and Belarus — gaps most often occurred in the education and health outcome categories. In some cases, countries provided disaggregations by age groups but not sex. As shown in Table 4, other countries failed to provide any of the representative indicators for the gender data categories.

Figure 15. Distribution of gender data index scores, 2017



The results indicate that our statistical knowledge of the education, health, and economic status of women remains incomplete. All the representative indicators included in ODIN have well-defined methodologies and can be produced using standard sources of survey or administrative data. Yet many are unavailable in national databases. Think how much worse is the larger set of SDG gender indicators: 19 lack internationally recognized methodologies and another 36 are available in less than half of all countries. A sustained effort will be needed to make available the full range of data needed to achieve gender equality and the empowerment of women.

Crime and justice

In 2017, ODIN added a new category of crime and justice statistics, changing the number of data categories from 20 to 21. The representative indicators and disaggregations for this data category were selected after consultation with the United Nations Office of Drugs and Crime (UNODC). Three indicators were chosen: (1) homicide rate or count; (2) crime rate or count; and (3) persons in prison or incarceration rate. The indicators and relevant disaggregations are shown in table 5.

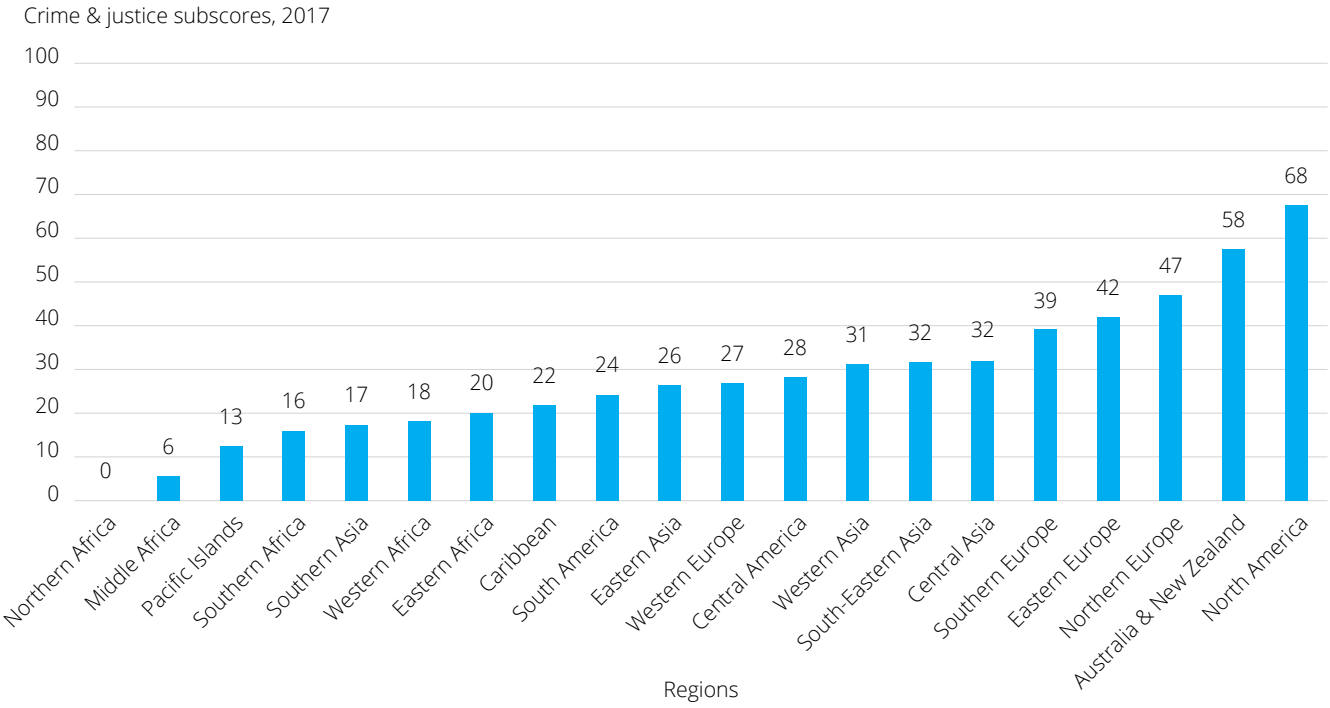
Table 5. Crime and justice indicators, 2017

Crime and justice statistics	(8.1) Homicide rate/count;	(8.1) Sex of victim; age of victim; sex of perpetrator; age of perpetrator; victim/perpetrator relationship.
	(8.2) Crime rate/count;	(8.2) Crime type; age of victim; sex of victim; sex of perpetrator; age of perpetrator; victim/perpetrator relationship.
	(8.3) Persons in prison/incarceration rate.	(8.3) Sentenced/Unsentenced (or other status); age; sex.

Overall, countries performed poorly on the new data category. Forty-eight countries did not publish any data on either of the three indicators and thirty countries did not meet ODIN's minimum coverage threshold for the data category. In both instances, countries received scores of zero. Only two other data categories had more countries that did not meet the threshold: pollution (80 countries) and energy use (120 countries). In countries that meet minimum coverage thresholds, the most often published indicators are crime rate, published by 57 percent of countries, followed by persons in prison, 43 percent, and homicide rate, 29 percent.

Across all 180 countries in ODIN, overall scores in this category show little difference between income groups, except in the lowest income bracket. However, there is a substantial difference when comparing crime and justice statistics subscores across regions, as shown in Figure 16.

Figure 16. Crime and justice statistics scores by region, 2017



North America, Australia and New Zealand, and European regions score highest, while many African regions and the Pacific Islands score lowest in crime and justice statistics. Northern Africa was the only region to have no country with qualifying data published. Some regions diverged from their usual trends. For instance, Western Europe's lowest scoring data category is crime and justice statistics. The eight countries that comprise this region average a score of 27, ten points lower than any other data category. This atypical performance is the result of four countries not publishing any qualifying datasets. Germany is the only country in the region that publishes some data on all three indicators. Outside Europe and North America, the highest scoring region is Central Asia. Only one country in the region, Turkmenistan, publishes no qualifying data.

At the indicator level, the lowest reported indicator is homicide rate with only 54 countries publishing any data. Persons in prison or incarceration rates are reported more often, with 78 countries publishing data, and crime rate is published the most often, with 122 countries publishing data. Nonetheless, only 15 countries receive a full point for the coverage and disaggregation of this data category as most countries do not provide the necessary sex disaggregation of their data.

The lack of gender data remains a serious impediment to the implementation of policies to achieve gender equality and the empowerment of women.

Annexes

Annex 1: ODIN Frequently Asked Questions

What is ODIN?

The Open Data Inventory (ODIN) is an evaluation of the coverage and openness of data provided on the websites maintained by national statistical offices (NSOs). The overall ODIN score is an indicator of how complete and open an NSO's data offerings are. The summary scores for social, economic, and environmental statistics and summary scores for coverage and openness provide a picture of the national statistical systems' strengths and weaknesses.

What is ODIN's purpose?

ODIN helps identify critical gaps, promote open data policies, improve data access, and encourage dialogue between NSOs and data users. NSOs and their development partners can use ODIN as part of a strategic planning process and as a measuring rod for the development of the statistical system. ODIN provides valuable information to data users within the government and private sectors and to the public about the availability of important statistical series. In addition to the ratings of coverage and openness in twenty-one statistical categories, ODIN assessments record the online location of key indicators in each data category, permitting quick access to 56 indicators.

How is open data defined?

There is general agreement on the core meaning of open data. As summarized in the Open Definition, version 2.1[5], "Knowledge is open if anyone is free to access, use, modify, and share it — subject, at most, to measures that preserve provenance and openness." This definition has been operationalized in the International Open Data Charter. In practical terms, open data should be machine readable in non-proprietary formats, accompanied by descriptive metadata and export options that allow customization and bulk download, and free to be used and reused for any purpose without limitations other than acknowledgement of the original source. These requirements have been incorporated in the five elements of the ODIN openness assessment.

What data categories are included?

ODIN assessments review published statistics in twenty-one categories, grouped as social statistics, economic and financial statistics, and environmental statistics. The default ODIN overall score weights the three groups equally. In each category, representative indicators were selected because they are frequently needed for public policies or private initiatives and because they provide evidence of underlying statistical processes for which statistical offices are responsible. The guidelines for assessing data coverage in each category are described in the *Methodology Report* on the ODIN website. The data categories in ODIN 2017 are:

1. Population and Vital Statistics
2. Education Facilities
3. Education Outcomes
4. Health Facilities
5. Health Outcomes
6. Reproductive Health
7. Gender Statistics
8. Crime and Justice Statistics
9. Poverty Statistics
10. National Accounts
11. Labor Statistics
12. Price Indexes
13. Government Finance
14. Money and Banking
15. International Trade
16. Balance of Payments
17. Land Use
18. Resource Use
19. Energy Use
20. Pollution
21. Built Environment

Why assess national statistical offices?

ODIN assessments begin with the websites maintained by national statistical offices because, in most countries, the NSO is the lead agency of the national statistical system, coordinating its work with other governmental bodies that produce official statistics. If an official national data source can be reached from the NSO's website, it is included in the ODIN assessment. NSOs, as producers and caretakers of official statistics, have a special obligation to maximize their public benefit. NSOs can and should be the leading advocates for and providers of high quality, official statistics to government, the public, and the international community.

Annex 2: Methodology Changes Since ODIN 2016

New data category

The prosecution of crime and operation of a justice system are important functions of justice. In 2017 ODIN added a new category of crime and justice statistics, changing the number of data categories from 20 to 21. The representative indicators and disaggregations for this data category were selected after consultation with the United Nations Office of Drugs and Crime (UNODC). For more information on the scoring of this data category, see the ODIN 2017 *Methodology Report*.

New indicators

New indicators were added in ODIN 2017 to better represent the types of data most often sought by data users. The new indicators are listed below, along with their corresponding data categories. These additions may have changed the minimum amount of data needed to score full points for coverage within the data categories. The changes reflect the growing number of datasets critical to monitoring sustainable development.

1. Data on child marriages (gender statistics)
2. Stunting, wasting, or obesity rates (health outcomes)
3. Interest rates (money and banking)
4. Data on protected lands (land use)
5. Data on timber harvests or deforestation (resource use)

NSO engagement

Beginning April 2017, Open Data Watch formally invited 180 NSOs to participate in the review of their country assessments. Upon confirmation, NSO representatives received a list of data sources for each indicator assessed in ODIN and were invited to suggest additional sources of data. All feedback was reviewed and taken into consideration if it met the methodology guidelines. Sixty-five NSOs confirmed participating and 48 ultimately submitted feedback. All countries were contacted at least three times between April and June 2017.

The NSO review process was introduced to ODIN 2017 as a response to the growing demand from NSOs to better understand ODIN methodology and their scores, as expressed at the 48th session of the United Nations Statistics Commission. It is also a chance for Open Data Watch to learn more about the country specific challenges to opening data and to use this feedback to strengthen the usefulness of ODIN to NSOs.

Change in education statistics

Within education statistics, the disaggregation of data by "school stage" must now show three stages. One stage must be primary, general, or have a similar description. The second two stages must be secondary or tertiary. In ODIN 2016, no such requirement existed. This change has resulted in a decrease of many countries' scores for education statistics. The change aligns our methodology more closely to the United Nations Educational, Scientific and Cultural Organization's (UNESCO) International Standard Classification of Education.

Change in reproductive health statistics

Assessments of indicators for reproductive health are based on definitions by the World Health Organization (WHO). Data presented using alternative definitions are no longer accepted. The following is a list of current indicators in this category along with their definitions.

- (6.1) Maternal mortality ratio is the number of maternal deaths per 100,000 live births.
- (6.2) Infant mortality rate is the probability of a child born in a specific year or period to die before reaching the age of one, per 1,000 live births.
- (6.3) Under-5 mortality rate is the probability of a child born in a specific year or period to die before reaching the age of five, per 1,000 live births.
- (6.4) Fertility rate is the number of births per 1,000 women.
- (6.5) Contraceptive prevalence rate is the percentage of women who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used. It is usually reported for married or in-union women aged 15 to 49.
- (6.6) Adolescent birth rate, also known as age-specific fertility rate, is the number of births per 1,000 women aged 15-19.

Scoring openness element: download options

In ODIN 2016, data categories could receive a maximum score on this openness element if all data had (1) an API or bulk download and (2) had user-selected download options. In ODIN 2017, a data category receives a maximum score if all indicators have (1) bulk download and (2) an API or user-selectable download options. This change was made to give bulk downloads increased emphasis, especially given their prominence in the Open Definition. APIs are not a substitute for bulk downloads and are better suited for certain users and scenarios. APIs and user-select download options both allow users to customize data exports to access a small part of the total available data, which is why these features are interchangeable for scoring purposes.

Bulk download definition

Bulk download is defined at the indicator level. In ODIN 2016, it was defined at the data category level. The current definition is: "The ability to download all available data recorded in ODIN for a particular indicator (all years, disaggregations, and subnational data) in one file, or multiple files that can be downloaded simultaneously." The effect of this change is that countries with a small amount of data published will not have their openness score penalized, so long as that data are available in bulk.

Terms of use scoring

In ODIN 2017, any policy that prohibits commercial use is classified as restrictive and receives a score of zero for this element. Last year, a policy with this clause was classified as semi-restrictive and scored ½ point. As explained by the Open Data Institute, "A non-commercial provision is problematic primarily because of a lack of clarity around what constitutes 'commercial' usage."[t] In some cases, a restriction on commercial use can be interpreted as usage for personal use only.

Metadata definition

In ODIN 2016, metadata were defined as either specific or general. In ODIN 2017, they are defined as complete or incomplete. There are three specific criteria for complete metadata: (1) definition of the indicator, definition of key terms used in indicator (as applicable), or description of how the indicator was calculated; (2) publication date (date of upload), data compilation date, or date dataset was last updated; and (3) name of data source (which agency collected or is responsible for the data). This change was made to increase the objectivity of scoring this element, as well as ensure the common components of many metadata standards were being met. These components focus on descriptions about the product and processes of the data, not the format, technology used, or administrative components.

Annex 3: ODIN Online

The ODIN website[u] includes scores for every round of ODIN and provides many ways for users to interact and manipulate scores. The following is a brief description of each page of the ODIN website and its functionality.

ODIN home

- The Home page displays a map of the world, showing in color the countries included in the 2017 ODIN assessment. Colors indicate the range of their overall ODIN score by quintiles. Countries in gray were not include in the 2017 ODIN assessments. The view can be toggled between years by selecting from the drop-down menu above the map.
- Clicking on a country brings up an information box with the country's aggregate scores and rank. Clicking on the country name takes users to the Country Profile page.

Rankings

- The Rankings page displays the overall score and aggregate subscores for data coverage and openness for all countries. The display can be sorted by country name, region, or scores by clicking on the table headers.
- The view defaults to ODIN 2017 data but can be changed by selecting a year from the drop-down menu.
- To download the dataset as seen on screen, click the download button in the top right corner and select the export file format.

Country profile

- The Country Profile page provides the most detailed information on a country's ODIN scores. Summary scores are shown for the 21 (20 in 2015 and 2016) data categories aggregated over the elements of coverage and openness and for the 10 elements of coverage and openness aggregated over the social, economic, and data categories. Graphs provide regional and global comparisons.
- The data locator tab on the Country Profile page provides a description of the sources used for ODIN assessments.
- A PDF report of a country's findings can be downloaded from this page by clicking "Download country report." This report shows a summary of results, provides a brief narrative with a list of recommendations, and provides other useful information to better understand the country's context.
- The Country Profile page also provides a two-year comparison when any pair of 2015, 2016, or 2017 are selected.

Regional comparison

- The Regional Comparison page gives users the option to compare country scores by geographic regions or income groups within geographic regions. Users choose options from the top drop-down menu to display data.
- To download the dataset as seen on screen, click the download button in the top right corner and select the export file format.
- ODIN countries are grouped by continents and regions defined by the United Nations Statistics Division's M49 listing of macro geographical regions[v]. Country codes are three-character ISO codes. ODIN also includes the Republic of Kosovo and Taiwan, Province of China with the respective ISO codes of XKX and TWN, which are not included in the UN list. Three-character regional codes were created for use in ODIN and are not part of the M49 listing.
- ODIN countries have also been classified by the World Bank's income groups.

Country comparison

- The Country Comparison page allows users to tabulate aggregate scores for one or more countries. The overall score and five scores aggregated over categories and elements are displayed.
- First select the year, followed by regions or sub-regions from which to select countries; then select some or all of the countries.
- To download the dataset as seen on screen, click the download button in the top right corner and select the export file format.

Data download

- The Data Download page provides access to the full ODIN dataset at the item level. Three types of scores can be selected: raw, weighted, and standardized. Raw scores are the original scores recorded by the assessors. Weighted scores have been multiplied by a weighting matrix that gives greater weight to the environmental and economic data categories to compensate for the fewer number of categories in the overall score. Standardized scores are derived from the weighted scores by dividing by the sum of their weights and multiplying by 100. The item level standardized scores differ from the raw scores by a factor of 100. Weighting only affects aggregate scores.
- First select regions or sub-regions and then select countries. The entire database can be selected by choosing all years, regions, and countries.
- The aggregate subscores for social, economic, and environmental categories and subscores for coverage and openness elements can be selected for downloading. Aggregates or raw scores and weighted scores are simple sums. Aggregates for standardized scores are weighted averages.

Custom weighting

- Users can apply custom weighting to each page of ODIN. When users open the custom weighting option from the menu bar, they will see ODIN standard weights, which weight the categories of social, economic, and environmental data so that each grouping contributes equally to the average score. Uniform weights are applied to each element of coverage and openness.
- To create a custom weighting matrix, click "Use Custom Weights." You will then have the option to type in your own weights. All values must be between 0 and 10. You can choose weights for 21 data categories and ten elements of coverage and openness by switching between the tabs. Weights across categories are normalized independently of the weights across elements.
- When finished, scroll to the bottom of the page and press "Save Weights." These weights will now be applied throughout the website for the remainder of the session. On each page, a red flag will appear to indicate custom weights are applied.
- To clear custom weights, navigate to the custom weighting screen and press "Reset," then "Save."
- Weights are saved only during the current session. If users close their session, they will have to input their weights again.

Reports

- The Reports page gives access to the ODIN *Annual Report*, ODIN *Methodology Report*, and one-page country and regional briefs in PDF format.

Annex 4: ODIN 2017 Scores and Rankings

***NSO officials provided feedback on data sources**

Denmark*	Northern Europe	80.2	1	64.6	5	94.5	2
Netherlands*	Western Europe	77.5	2	55.2	20	98.1	1
Sweden	Northern Europe	77.3	3	66.6	3	87.2	4
Poland*	Eastern Europe	75.4	4	70.2	1	80.2	10
Canada*	North America	74.8	5	63.0	7	85.7	5
Finland	Northern Europe	74.6	6	60.1	11	88.0	3
Norway	Northern Europe	73.8	7	70.2	1	77.1	14
Bulgaria	Eastern Europe	72.9	8	62.1	9	82.8	8
Mexico*	Central America	70.6	9	55.5	19	84.6	6
Slovenia*	Southern Europe	69.1	10	54.4	25	82.8	8
Slovakia*	Eastern Europe	68.8	11	57.7	15	79.1	11
United States*	North America	68.6	12	65.3	4	71.7	21
Estonia*	Northern Europe	68.0	13	58.7	13	76.6	15
Australia	Australia and New Zealand	67.4	14	50.0	41	83.5	7
Czech Republic*	Eastern Europe	67.1	15	63.4	6	70.5	24
Korea, Rep.	Eastern Asia	66.0	16	53.1	28	77.9	13
Latvia	Northern Europe	65.6	17	51.2	37	79.0	12
Lithuania*	Northern Europe	65.6	17	60.4	10	70.4	25
Moldova	Eastern Europe	65.6	17	54.5	24	75.8	16
Singapore*	South-Eastern Asia	63.8	20	55.0	21	70.6	23
Portugal	Southern Europe	63.7	21	54.8	23	71.9	20
New Zealand	Australia and New Zealand	62.9	22	49.3	42	75.5	17
Italy	Southern Europe	62.5	23	56.2	18	68.4	27
Mongolia*	Eastern Asia	62.2	24	52.5	32	71.1	22
Germany*	Western Europe	60.8	25	47.4	43	73.2	19
Ireland	Northern Europe	60.5	26	46.2	47	73.6	18
Indonesia*	South-Eastern Asia	58.3	27	58.0	14	58.5	43

Philippines*	South-Eastern Asia	58.2	28	45.2	54	70.2	26
Spain	Southern Europe	58.1	29	53.1	28	62.8	33
Hong Kong SAR, China*	Eastern Asia	57.5	30	54.3	26	60.0	39
Mauritius*	Eastern Africa	57.5	30	53.0	30	61.7	35
Macedonia, FYR*	Southern Europe	57.3	32	52.5	32	61.7	35
France*	Western Europe	57.2	33	46.0	48	67.5	29
Iceland*	Northern Europe	56.6	34	44.5	57	67.7	28
Austria	Western Europe	56.1	35	51.2	37	60.7	37
Japan	Eastern Asia	56.1	35	54.9	22	57.3	48
Peru*	South America	55.9	37	52.0	36	59.5	40
Georgia	Western Asia	55.1	38	52.9	31	57.2	49
Ecuador*	South America	55.0	39	47.4	43	61.9	34
Albania	Southern Europe	54.3	40	50.5	40	57.7	46
Rwanda*	Eastern Africa	53.7	41	43.4	61	63.2	31
Colombia*	South America	53.5	42	54.2	27	52.9	55
Armenia*	Western Asia	53.4	43	50.9	39	55.7	52
India	Southern Asia	52.7	44	45.9	49	58.9	42
Costa Rica*	Central America	52.4	45	43.8	59	60.3	38
Kazakhstan	Central Asia	52.3	46	62.5	8	42.9	75
Hungary	Eastern Europe	51.8	47	52.1	35	51.4	57
Switzerland*	Western Europe	51.8	47	45.2	54	57.9	45
Azerbaijan	Western Asia	51.0	49	59.3	12	43.4	72
United Arab Emirates*	Western Asia	51.0	49	36.2	95	64.8	30
Turkey	Western Asia	50.8	51	42.5	65	58.4	44
Cyprus*	Western Asia	50.7	52	44.5	57	56.5	50
Oman	Western Asia	50.1	53	36.0	96	63.1	32
United Kingdom*	Northern Europe	49.7	54	43.1	63	55.8	51
Russian Federation*	Eastern Europe	49.6	55	56.6	17	43.1	74
Belgium	Western Europe	49.1	56	44.6	56	53.3	54
Kuwait	Western Asia	48.2	57	45.7	51	50.5	60
Belarus*	Eastern Europe	48.1	58	57.3	16	39.6	84

Greece	Southern Europe	48.0	59	40.0	72	55.4	53
Kyrgyzstan	Central Asia	47.7	60	52.2	34	43.6	71
Luxembourg	Western Europe	46.9	61	33.5	116	59.3	41
Israel*	Western Asia	46.4	62	39.7	75	52.6	56
Uruguay*	South America	46.0	63	40.6	69	50.9	59
Dominican Republic	Caribbean	44.8	64	42.9	64	46.6	64
Malaysia	South-Eastern Asia	44.8	64	39.8	73	49.3	62
South Africa	Southern Africa	44.7	66	37.5	85	51.3	58
Jamaica*	Caribbean	44.3	67	30.2	128	57.4	47
Kosovo	Southern Europe	43.7	68	43.2	62	44.1	70
Sri Lanka	Southern Asia	43.6	69	45.8	50	41.6	79
Palestine	Western Asia	43.1	70	45.6	52	40.7	81
Botswana*	Southern Africa	42.8	71	36.4	92	48.7	63
Croatia	Southern Europe	42.6	72	42.0	67	43.2	73
Bolivia*	South America	42.2	73	33.3	117	50.5	60
Ukraine	Eastern Europe	41.8	74	46.7	45	37.3	91
Uganda	Eastern Africa	41.7	75	37.8	84	45.4	69
Malta	Southern Europe	41.6	76	35.2	101	46.4	65
China	Eastern Asia	41.5	77	43.6	60	39.6	84
Taiwan	Eastern Asia	40.7	78	34.7	104	46.3	66
Tajikistan	Central Asia	40.7	78	35.3	99	45.6	68
Senegal*	Western Africa	39.9	80	37.4	86	42.1	77
Myanmar	South-Eastern Asia	39.2	81	31.8	123	46.1	67
Bhutan	Southern Asia	39.1	82	45.3	53	33.3	110
Egypt	Northern Africa	38.9	83	46.4	46	32.1	119
Liechtenstein	Western Europe	38.0	84	32.8	119	42.8	76
Brazil	South America	37.9	85	39.2	79	36.6	94
Jordan	Western Asia	37.9	85	36.6	88	39.1	87
Montenegro	Southern Europe	37.6	87	39.7	75	35.6	102
Nigeria	Western Africa	37.6	87	42.5	65	33.1	113
Qatar	Western Asia	37.6	87	39.7	75	35.7	99

Maldives*	Southern Asia	37.5	90	34.1	107	40.2	82
Argentina*	South America	37.3	91	37.9	83	36.7	92
Panama	Central America	37.3	91	38.4	80	36.3	95
Serbia	Southern Europe	37.1	93	35.2	101	38.7	88
Samoa	Pacific Islands	37.0	94	34.0	109	39.8	83
Bangladesh	Southern Asia	36.9	95	38.2	82	35.7	99
Tunisia*	Northern Africa	36.6	96	36.5	90	36.7	92
Kenya	Eastern Africa	36.4	97	40.8	68	32.3	117
Guinea*	Western Africa	36.2	98	36.4	92	36.0	97
Liberia*	Western Africa	36.2	98	34.8	103	37.6	90
Mali	Western Africa	36.1	100	34.0	109	37.9	89
Vietnam	South-Eastern Asia	35.9	101	30.3	127	41.2	80
Paraguay	South America	35.5	102	40.3	71	31.1	123
Seychelles	Eastern Africa	35.4	103	36.4	92	34.7	108
Cameroon	Middle Africa	35.3	104	35.6	97	35.1	105
Macao SAR, China	Eastern Asia	35.3	104	28.2	136	41.9	78
El Salvador	Central America	35.0	106	33.8	113	36.1	96
Cuba	Caribbean	34.9	107	40.5	70	29.8	128
Bosnia and Herzegovina	Southern Europe	34.8	108	36.5	90	33.2	111
Iran, Islamic Rep.	Southern Asia	34.8	108	39.7	75	30.3	126
Niger	Western Africa	34.7	110	36.9	87	32.6	116
Belize	Central America	34.6	111	33.9	111	35.3	103
Suriname	South America	34.5	112	33.7	114	35.3	103
Honduras	Central America	34.3	113	33.7	114	34.8	107
Ghana	Western Africa	34.2	114	36.6	88	32.0	120
Mauritania	Western Africa	33.8	115	32.5	120	35.0	106
Pakistan	Southern Asia	33.4	116	39.8	73	27.6	141
Nepal	Southern Asia	33.3	117	34.6	106	32.2	118
Thailand	South-Eastern Asia	33.1	118	38.3	81	28.4	137
Lebanon	Western Asia	33.0	119	31.2	125	34.7	108
Tanzania	Eastern Africa	32.9	120	35.4	98	30.6	124

Sierra Leone	Western Africa	32.6	121	32.2	122	33.0	115
Malawi	Eastern Africa	32.5	122	28.9	134	35.9	98
Lesotho	Southern Africa	31.9	123	23.7	148	39.6	84
Burundi	Eastern Africa	31.8	124	34.7	104	29.2	132
Nicaragua	Central America	31.8	124	33.9	111	29.8	128
Guatemala	Central America	31.1	126	30.2	128	32.0	120
Venezuela	South America	30.9	127	31.8	123	30.2	127
Algeria*	Northern Africa	30.6	128	32.5	120	28.7	134
Chile	South America	29.6	129	35.3	99	24.3	155
Burkina Faso	Western Africa	29.5	130	30.8	126	28.3	138
Congo, Rep.	Middle Africa	29.5	130	25.5	144	33.1	113
Saudi Arabia	Western Asia	29.3	132	30.2	128	28.5	136
Morocco	Northern Africa	28.9	133	33.1	118	24.9	153
Andorra	Southern Europe	28.5	134	24.3	147	31.9	122
Fiji	Pacific Islands	28.5	134	26.3	142	30.6	124
Romania*	Eastern Europe	28.4	136	28.6	135	28.1	140
St. Vincent & Grenadines	Caribbean	28.4	136	30.2	128	27.1	145
Solomon Islands	Pacific Islands	28.3	138	26.7	140	29.7	130
The Bahamas	Caribbean	28.3	138	27.6	139	29.0	133
Trinidad and Tobago	Caribbean	28.1	140	19.9	161	35.7	99
Ethiopia	Eastern Africa	28.0	141	30.0	132	26.0	149
Mozambique	Eastern Africa	27.9	142	34.1	107	22.1	161
Guinea-Bissau	Western Africa	27.5	143	21.3	158	33.2	111
Vanuatu	Pacific Islands	27.3	144	26.3	142	28.3	138
Zimbabwe	Eastern Africa	27.1	145	28.0	137	26.2	148
The Gambia	Western Africa	26.4	146	25.5	144	27.2	144
Iraq	Western Asia	26.2	147	27.9	138	24.6	154
Namibia	Southern Africa	26.2	147	25.3	146	27.0	147
Djibouti	Eastern Africa	26.1	149	22.7	151	29.3	131
Timor-Leste	South-Eastern Asia	25.8	150	29.7	133	22.2	160
Kiribati	Pacific Islands	24.9	151	21.8	156	27.3	143

Cambodia	South-Eastern Asia	24.8	152	20.6	160	28.7	134
Togo	Western Africa	24.4	153	21.4	157	27.1	145
Congo, Dem. Rep.	Middle Africa	23.5	154	22.8	150	24.1	156
Marshall Islands	Pacific Islands	23.4	155	20.8	159	25.4	150
Zambia	Eastern Africa	23.2	156	26.5	141	20.2	166
Cote d'Ivoire	Western Africa	23.1	157	18.4	164	27.4	142
Lao PDR	South-Eastern Asia	22.7	158	22.6	153	22.7	158
Guyana	South America	22.6	159	23.4	149	21.9	163
Micronesia, Fed. Sts.	Pacific Islands	22.2	160	22.0	155	22.3	159
Afghanistan	Southern Asia	22.1	161	22.1	154	22.1	161
Sao Tome and Principe	Middle Africa	21.5	162	16.8	168	25.1	152
Angola	Middle Africa	20.8	163	18.2	165	23.2	157
South Sudan	Eastern Africa	20.3	164	14.9	171	25.3	151
Cabo Verde	Western Africa	20.0	165	18.9	163	21.1	165
St. Lucia	Caribbean	19.7	166	22.7	151	17.3	169
Uzbekistan	Central Asia	17.6	167	17.4	166	17.7	168
Gabon	Middle Africa	17.3	168	13.0	174	21.2	164
Syrian Arab Republic	Western Asia	17.1	169	17.2	167	17.1	170
Papua New Guinea	Pacific Islands	16.2	170	15.2	170	17.1	170
Turkmenistan	Central Asia	15.7	171	13.0	174	18.2	167
Benin	Western Africa	15.1	172	13.4	172	16.7	172
Sudan	Northern Africa	14.7	173	15.7	169	13.8	173
Libya	Northern Africa	13.7	174	19.4	162	8.4	176
Haiti	Caribbean	12.8	175	13.3	173	12.4	174
Anguilla	Caribbean	11.1	176	10.5	176	11.6	175
Swaziland	Southern Africa	6.7	177	5.5	178	7.9	177
Madagascar	Eastern Africa	6.2	178	7.5	177	4.9	179
Somalia*	Eastern Africa	5.7	179	5.2	179	6.2	178
Chad	Middle Africa	3.2	180	1.7	180	4.6	180

References and Hyperlinks

a. Independent Expert Advisory Group Secretariat, 2014, *A World That Counts: A World That Counts: Mobilising the Data Revolution for Sustainable Development*. Available at: http://www.undatarevolution.org/report/

b. Cape Town Global Action Plan for Sustainable Development Data. Available at: https://unstats.un.org/sdgs/hlg/Cape-Town-Global-Action-Plan/

c. Open Knowledge Foundation, n.d., *Open Data Definition*. Available at: http://opendefinition.org/od/2.1/en/

d. International Open Data Charter. Available at: http://opendatacharter.net/

e. Open Data for Development. Available at: http://od4d.net/

f. PARIS21, 2017, *NSDS Guidelines: Open Data*. Available at: http://nsdsguidelines.paris21.org/node/530

g. World Bank, Open Data Readiness Assessment. Available at: http://opendatatoolkit.worldbank.org/en/odra.html

h. National platforms for SDG reporting: Identifying best practices and solutions meeting. Available at: https://unstats.un.org/unsd/capacity-building/meetings/National_Platforms_for_SDGs

i. OECD, *Development Co-operation Report 2017: Data for Development*, OECD Publishing, Paris. Available at: http://dx.doi.org/10.1787/dcr-2017-en

j. Shaida Badiee and Eric Swanson, 2016, *The State of Development Funding 2016*. Available at: http://opendatawatch.com/wp-content/uploads/2016/09/development-data-funding-2016.pdf

k. Open Knowledge Foundation, n.d., *Open Data Definition*. Available at http://opendefinition.org/od/2.1/en/

l. The Open Data Institute, *What are the impacts of non-open licenses?* Available at: https://theodi.org/guides/impacts-of-non-open-licenses

m. Glyn Moody, 2014, *German Court Says Creative Commons 'Non-Commercial' Licenses Must be Purely for Personal Use*, Techdirt. Available at: https://www.techdirt.com/articles/20140326/11405526695/german-court-says-creative-commons-non-commercial-licenses-must-be-purely-personal-use.shtml

n. Creative Commons, CC0 1.0 Universal (CC0 1.0) Public Domain Dedication. Available at: https://creativecommons.org/publicdomain/zero/1.0/

o. Creative Commons, Attribution 4.0 International. Available at: https://creativecommons.org/licenses/by/4.0/legalcode

p. Open Knowledge Foundation, n.d., *Open Data Definition*. Available at: http://opendefinition.org/od/2.1/en/

q. See, for example, Mayra Buvinic, Rebecca Furst-Nichols and Gayatri Koolwal, 2014, *Mapping Gender Data Gaps*. Available at: http://www.data2x.org/wp-content/uploads/2017/11/Data2X_MappingGenderDataGaps_FullReport.pdf

r. Data2X and Open Data Watch, 2016, *Ready to Measure: Twenty Indicators for Monitoring SDG Gender Targets*. Available at: http://www.data2x.org/wp-content/uploads/2017/11/Ready-to-Measure.pdf

s. Open Knowledge Foundation, n.d., *Open Data Definition*. Available at: http://opendefinition.org/od/2.1/en/

t. The Open Data Institute, *What are the impacts of non-open licenses?* Available at: https://theodi.org/guides/impacts-of-non-open-licenses

u. Open Data Watch, Open Data Inventory. Available at: http://odin.opendatawatch.com/

v. United Nations Statistics Division, Methodology: Standard country or area codes for statistical use (M49). Available at: https://unstats.un.org/unsd/methodology/m49/

OPEN DATA WATCH
1110 Vermont Avenue
Washington, DC 20005

OPENDATAWATCH.COM