World Bank databases Reproducibility Packages of 2026 Report
"Infrastructure Foundations - From Current Assets to Future Growth"
README

Contents

Overview

This package fully reproduces all outputs in the report "Infrastructure Foundations - From Current Assets to Future Growth". It consists of this README file, [structure of the files to be shared]

To replicate the whole report, only the user path in the main code files need to be adjusted.

Data Availability

This section will outline where and how the data supporting the findings of the study can be accessed and used. This is crucial, especially for replicating the results, as only the same data will be able to produce consistent results. Please note:

Some data cannot be made publicly available.

Data Sources

Raw Data File Name (under path: "Report_ReproduciblePackage\Data\Raw\")	
Energy_StockValue_national.csv Energy_StockValue_admin0.csv Energy_StockValue_admin1.csv Energy_StockValue_admin2.csv	**Source:** Development Data Hub **URL:** https://datacatalog.worldbank.org/int/data/

	dataset/0067069/energy_infrastructure_stock_and_value **Availability:** Official Use Only
Combined_PowerPlantsDataset_Share.csv Energy_PowerPlants_Stock_Capital_admin2.csv	**Source (Access year):** Compiled by the project team from public and proprietary data providers including Global Power Plant Database (Version: 1.3.0, Release Year: 2021-06-02); Global Integrated Power Tracker February 2025 (February 2025 update); World Bank EPM model (May, 2025) **Availability:** Please contact the data provider from the below DDH url for the sharing of the data: https://datacatalog.worldbank.org/int/data/dataset/0067069/energy_infrastructure_stock_and_value.
ImpliedE_Final.csv	**Source:** Compiled by the project team, main data comes from the meta-analysis paper (Foster 2025) and World Bank / ESMAP Energy Planning Model (EPM). **URL:** https://www.esmap.org https://documents.worldbank.org **Access year:** 2026 **Availability:** Included in the reproducible package as a local project dataset.
Railway_StockValue_national.csv Railway_StockValue_admin1.csv Railway_StockValue_admin2.csv results_v4.csv	**Source:** Development Data Hub **URL:** https://datacatalog.worldbank.org/int/data/dataset/0067070/transport_infrastructure_stock_and_value **Availability:** Official Use Only
population_total.csv	**Source:** World Bank Open Data, *Population, total* (Indicator: SP.POP.TOTL), World Development Indicators **URL:** https://data.worldbank.org/indicator/SP.POP.TOTL **Access year:** 2025 **Availability:** Publicly available
1112_WEO_CAPEX.csv	**Source:** International Energy Agency (IEA), *World Energy Outlook (WEO)* techno-economic / capital cost assumptions for power-generation technologies.

	URL: https://www.iea.org/reports/world-energy-outlook-2025 https://www.iea.org/reports/global-energy-and-climate-model/techno-economic-inputs **Access year:** 2025 **Availability:** Publicly available
1112_IRENA_Total_Installed_Cost.xlsx	**Source:** International Renewable Energy Agency (IRENA), Renewable Power Generation Costs database/report series **URL:** https://www.irena.org/Publications/2024/Sep/Renewable-Power-Generation-Costs-in-2023 https://www.irena.org/reports/global-energy-and-climate-model/techno-economic-inputs **Access year:** 2025 **Availability:** Publicly available
1112_CPI_Table 3.1.xlsx	**Source:** Compiled from World Bank / ESMAP transmission cost assumptions and related power-system planning references. **URL:** https://www.esmap.org https://documents.worldbank.org **Access year:** 2026 **Availability:** Publicly available, locally compiled for project use.
mradata.dta	**Source:** Foster, V., Gorgulu, N., Jain, D., Straub, S., & Vagliasindi, M. (2025). The impact of infrastructure on development outcomes: A meta-analysis. World Bank Research Observer. **URL:** https://documents1.worldbank.org/curated/en/099510203092318515/pdf/IDU08a9d8af40f7d50487e0837208744c048b215.pdf **Access year:** 2025 **Availability:** Shared by authors. The author may be contacted at vfoster@worldbank.org, mvagliasindi@worldbank.org, ngorgulu@worldbank.org, stephane.straub@tse-fr.eu, and jain.dhruv@tse-fr.eu.
population_ecu_admin2.xlsx	**Source:** Ecuador Instituto Nacional de Estadisticas y Censos (National Institute of Statistics and Census)

	URL: https://www.ecuadorencifras.gob.ec/censos/ **Access year:** 2025 **Availability:** Publicly available
Additional data in folder .. \04_AdditionalRestrictedData:	
digital_total_stock_february_23.csv digital_total_stock_february_23_time_series_panel.csv submarine_clean_data.csv ixp_costs.xlsx fibercables_costsestimates.csv CT_dealvalues_towerxchange 1.csv full_dataset_with_explanatory.csv train.csv subcables_cost.xlsx datacenters_final_2026.xlsx ecuador_sites_macro_micro_costed_depr_2025.csv admin2_ecuador_total.csv	**Source:** Multiple sources using data from proprietary data. Telegeography (https://www2.telegeography.com/); GlobalData (https://www.globaldata.com/); and publicly available data from TowerXchange (https://infraxchange.com/); PCH (**https://www.pch.net/ixp/**); and OpenCellId (https://www.opencellid.org/downloads.php) **Access year**: 2025 **Availability:** Raw and cleaned data for the digital sector is compiled by the project team from public and proprietary data. Confidential. If needed, please contact Estefania Belen Vergara Cobos (evergaracobos@worldbank.org) for application details.
itu_transmission_lines.geojson itu_transmission_lines_validated.geojson	**Source:** https://bbmaps.itu.int/bbmaps/ **Access date:** February 15, 2025 **Availability:** The file itu_transmission_lines_validated.geojson is a validated version of the ITU transmission lines data used for Map 2.3. It was derived from the ITU Broadband Maps, BBmaps, transmission network layer and subsequently validated for use in the map. If needed, please contact Estefania Belen Vergara Cobos (evergaracobos@worldbank.org) for application details.
Ookla_data_countrylevel.dta	**Source:** https://registry.opendata.aws/speedtest-global-performance/ **Access date:** February 15, 2025 **Availability:** Raw ookla data. Speedtest by Ookla Global Fixed and Mobile Network Performance Maps, Open Dataset. If needed,

	please contact Estefania Belen Vergara Cobos (evergaracobos@worldbank.org) for application details. **License:** CC BY NC SA 4.0.
Additional data in folder ..\00_Non Sectoral Data\Raw:	
\Map\..	**Source:** World Bank Official Boundaries (two versions - Jun 17, 2025 Version 5; Mar 18, 2020) **URL:** https://datacatalog.worldbank.org/int/search/dataset/0038272/world-bank-official-boundaries **Access year:** May & Aug 2025 **Availability:** Publicly Available
\IMFInvestmentStock\IMFInvestmentandCapitalStockDataset2021.xlsx	**Source:** IMF Investment and Capital Stock Dataset, 1960-2019 (Version May, 2021) **URL:** https://infrastructuregovern.imf.org/content/dam/PIMA/Knowledge-Hub/dataset/IMFInvestmentandCapitalStockDataset2021.xlsx **Access year:** 2025 **Availability:** Publicly Available **Comments:** Additional calculations to back out the depreciation rate for road, railway, and transmission and distribution lines are added in sheet2 and sheet 3. Further details about the methodology are included in the report.
\CountryData\GDPContributor.xlsx	**Source:** World Development Indicators **URL:** http://databank.worldbank.org/data/home.aspx **Access year:** 10/07/2025 **Availability:** Publicly available
\CountryData\PWT_2025-12-01T21-30_export.csv	**Source:** Penn World Table (PWT) **URL:** https://www.rug.nl/ggdc/productivity/pwt/ **Access year:** 12/1/2025 **Availability:** Publicly available
\CountryData\CLASS.xlsx \CountryData\ historicincomegroups.csv \CountryData\ classy.csv	**Source:** World Bank, *World Bank Country and Lending Groups*

	URL: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups **Access year:** 2025 **Availability:** Publicly available
\CountryData\DoingBusiness_Data.csv	**Source:** World Bank, *Doing Business Database* **URL:** https://archive.doingbusiness.org/en/doingbusiness **Access year:** 2024 **Availability:** Publicly available
\CountryData\Enterprise_Data.csv	**Source:** World Bank, *Enterprise Surveys* **URL:** https://www.enterprisesurveys.org/ **Access year:** 2024 **Availability:** Publicly available
\CountryData\Governance_Data.csv	**Source:** World Bank, *Worldwide Governance Indicators (WGI)* **URL:** https://databank.worldbank.org/source/worldwide-governance-indicators **Access year:** 2024 **Availability:** Publicly available
\CountryData\WDI_Data.csv	**Source:** World Bank, *World Development Indicators (WDI)* **URL:** https://databank.worldbank.org/source/world-development-indicators **Access year:** 2025 **Availability:** Publicly available
\CountryData\WDI_Data_20260113.csv	**Source:** World Bank, *World Development Indicators (WDI)* **URL:** https://databank.worldbank.org/source/world-development-indicators **Access year:** 2026 **Availability:** Publicly available
\CountryData\ILO_Data.xlsx	**Source:** International Labour Organization (ILO), ILOSTAT Database **URL:** https://ilostat.ilo.org/data/ **Access year:** 2026 **Availability:** Publicly available

\CountryData\d8a58af6-11b5-47d0-aa47-d469c1a87c1a_Data.csv	**Source:** World Bank, *Urban population (% of total population)* **URL:** https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS **Access year:** 2025 **Availability:** Publicly available
\CountryData\e8392a03-3c8e-4120-9f05-b1a53380ad09_Data.csv	**Source:** World Bank, *International Comparison Program (ICP)* **URL:** https://www.worldbank.org/en/programs/icp **Access year:** 2025 **Availability:** Publicly available
\CountryData\construction_BOS_data.xlsx	**Source:** World Economic Forum, *Global Competitiveness Report* / Global Competitiveness Index dataset **URL:** https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf? **Access year:** 2025 **Availability:** Publicly available
\CountryData\labor cost final.xlsx	**Source:** Global Labor Database data and ILOSTAT data **URL:** https://ilostat.ilo.org/topics/labour-costs/; https://worldbank.github.io/gld/Support/A%20-%20Guides%20and%20Documentation/GLD%20Manual%20Files/Introduction%20to%20the%20GLD.html **Access year:** 2025 **Availability:** Publicly available **Comment:** Collected, cleaned, and harmonized by staff and consultants.
\CountryData\population_total.csv	**Source:** World Bank Open Data, *Population, total* (Indicator: SP.POP.TOTL), World Development Indicators **URL:** https://data.worldbank.org/indicator/SP.POP.TOTL **Access year:** 2025

	Availability: Publicly available
\CountryData\ICRG_EconCountryData.csv \CountryData\ICRG_PRS.csv \CountryData\ICRG_RiskData.csv	**Source:** International Country Risk Guide **URL:** www.prsgroup.com **Access year:** 2025 **Availability:** Publicly available
\CountryData\LAC_4HRL_ECO_CUR_NB_A-20241217T1929.dta \CountryData\EAR_4HRL_SEX_OCU_CUR_NB_A-20241217T1932.dta	**Source:** International Labour Organization **URL:** https://ilostat.ilo.org/data/ **Access year:** 2024 **Availability:** Publicly available
\ Meta-Analysis Estimates \Cost of Capital.xlsx	**Source:** Professor Aswath Damodaran – NYU Stern School of Business **URL:** https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html **Access year:** 2026 **Availability:** Publicly available
\ Meta-Analysis Estimates\ ElasticityINF_INFFlagship_20250811.xlsx	**Source:** Foster, V., Gorgulu, N., Jain, D., Straub, S., & Vagliasindi, M. (2025). The impact of infrastructure on development outcomes: A meta-analysis. World Bank Research Observer. **URL:** https://documents1.worldbank.org/curated/en/099510203092318515/pdf/IDU08a9d8af40f7d50487e0837208744c048b215.pdf **Access year:** 2025 **Availability:** Shared by authors. The author may be contacted at vfoster@worldbank.org, mvagliasindi@worldbank.org, ngorgulu@worldbank.org, stephane.straub@tse-fr.eu, and jain.dhruv@tse-fr.eu.
\Meta-Analysis Estimates\Cost of Capital.xlsx	**Source:** Professor Aswath Damodaran – NYU Stern School of Business **URL:** https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html **Access year:** 2026 **Availability:** Publicly available
Raw Data for Selected Figures (under path: "Report_ReproduciblePackage\Data\ FigureData\")	

Figure 3.S1 The Roads of Hispaniola\.. Figure 4.8 Subnational Distribution of Line Transport Infrastructure\.. Figure 6.7 Subnational Distribution of Transport Nigeria\.. Figure 6.8 Subnational Distribution of Roads\..	**Source:** OpenStreetMap (use geofabric); WorldPop; Development Data Hub **URL:** , https://download.geofabrik.de; https://data.worldpop.org/GIS/Population; https://datacatalog.worldbank.org/int/data/dataset/0067070/transport_infrastructure_stock_and_value **Access year:** 2025 **Availability:** Publicly available
Figure 5.8 Modelling Results Unit Cost of Roads\.. Figure 5.9 Modelling Results Unit Cost of Railways\..	**Source:** results calculated from GlobalData **URL:** https://www.globaldata.com/ **Access year:** 2025 **Availability:** Data is proprietary, the results are publicly available

Instructions for Replicators

New users should follow these steps to run the package successfully: - Users must first have access to all data files if they are not included in the reproducibility package. They should go to the mentioned links, download the listed files, and place them in the data folder. - Update the following files with your directory paths

Output	Steps to Follow
00_IndependentVar.csv 00b_IndependentVar.csv	First, need to run this code as it generates information used for other sectoral data **00_IndependentVar_MasterDoFile.do** **00b_IndependentVar_MasterDoFile.do**
prelim_capital_elas.xlsx prelim_capital_elas_meta.xlsx	Run 2 separate files, to generate another part that will be used to create the main dataset for the report: **11_CapitalCost_Elasticity_GDP_Compile.do** **12_Data_construction_elasticity_revised.R**

	Run the code to produce the final cleaned dataset: **20_CompileDataset.ipynb**
Exhibit Outputs	Run the followings files: **31_Python_Chap 1~6.ipynb** **32_STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do** **33_R_Chap 2,5.R** **34_DigitalFigures.R** **35_figure6.12_code.R** **36_Chapter7Appendix2_EnergyMeta.ipynb**

List of Exhibits

Commented [XL1]: @Seojin Kim

The provided code reproduces:

- ☐ All numbers provided in text in the paper
- ☐ Selected tables and figures in the paper, as explained and justified below

Note: when the map team recreated the global map, the median value changes due to the selection of economies shown. Some visual differences are expected due to the territorial choice. The recreated map uses the same output data.

Exhibit name	**Output filename**	**Script**	**Note**
Figure ES.1	Same as Figure 2.1	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 333)	Twin
Map ES.1	Same as Chapter4_Figure5_BRA.png	Same as Figure 4.5a	Twin
Map ES.2	Same as Chapter4_Figure5_NGA.png	Same as Figure 4.5b	Twin

Map ES.3	"ES4_required_data.csv" Original map: ChapterES_Figure4_Transport_per_capita.png Recreated map uses the csv output file.	Python_Chap 1~6.ipynb	Map team recreated
Figure ES.2	Same as Figure 2.10	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 283)	Twin
Figure ES.3	Same as Figure 2.12	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 234)	Twin
Figure ES.4	Same as Figure 3.3	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 723)	Twin
Figure ES.5	Same as Figure 3.4	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 814)	Twin
Figure ES.6	Same as Chapter3_Figure5a.png	Chapter7Appendix2_EnergyMeta.ipynb	Twin
Figure 1.1	Figure 1.1 Distribution of estimated elasticities from the literature.png	Python_Chap 1~6.ipynb	
Table 1.1	Shared by operational team, not reproducible, using bank's internal data		
Table 1A.1		01_CompileDataset.ipynb	Summary stats for the cleaned dataset
Figure 2.1	Figure 2.1.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 333)	Same as Figure

			ES. 1
Figure 2.2	Chapter2_Figure2_Distribution_of_power_generation_capacity.png	R_Chap 2,5.R	
Map 2.1	"Figure 2.3.csv" Original map: Figure 2.3.png Recreated map uses the csv output file.	Python_Chap 1~6.ipynb	Map team recreated
Map 2.2a	"Figure2_4a.csv" Original map: Figure2_4a_Roads_per_capita.png Recreated map uses the csv output file.	Python_Chap 1~6.ipynb	Map team recreated
Figure 2.2b	Figure2_4b_Rail_per_capita	Python_Chap 1~6.ipynb	Map team recreated
Figure 2.3	Raw data illustration, proprietary data Data and code shared in NDA\Digital\ Figure2_3.zip. Data Source: Multiple sources using data from proprietary data. Telegeography (https://www2.telegeography.com/); GlobalData (https://www.globaldata.com/); and publicly available data from TowerXchange (https://infraxchange.com/) and OpenCellId (https://www.opencellid.org/downloads.php) Access year: 2025 Availability: Raw and cleaned data for the digital sector is compiled by the project team from public and proprietary data. Confidential. If needed, please contact Estefania Belen Vergara Cobos (evergaracobos@worldbank.org) for application details.		
Map 2.3 a & b	Raw data illustration, proprietary data Data shared in NDA\Digital\ Map 2_3 Data Source: Multiple sources using data from proprietary data. Telegeography (https://www2.telegeography.com/); GlobalData (https://www.globaldata.com/); and publicly available data from TowerXchange (https://infraxchange.com/) and OpenCellId (https://www.opencellid.org/downloads.php) Access year: 2025 Availability: Raw and cleaned data for the digital sector is compiled by the project team from public and proprietary data. Confidential. If needed, please contact Estefania Belen Vergara Cobos (evergaracobos@worldbank.org) for application details. Raw data illustration, proprietary data Data shared in NDA\Digital\Map 2.3 Digital Infrastructure Expansion in Asia Map 2.3a & b — Raw data illustration, proprietary data. Data shared under NDA in NDA\Digital\Map 2.3 Digital Infrastructure Expansion in Asia. The map was produced in QGIS using the following layers:		

	Point layers (CSV, imported via Layer → Add Layer → Add Delimited Text Layer): Internet Exchange Points (IXPs): ixp/ITU_ixp.geojson Data Centers: data_center/(GD,%20TG)%20data_center_merged.csv Cell towers (Asia): CellTowers/distribution_with_coordinates/cell_towers_asia.csv Cell towers (China): cell_towers_china.csv Cell towers (Japan): cell_towers_japan.csv Cell towers (LAC–Caribbean): cell_towers_lac_caribbean.csv Cell towers (LAC–inland): cell_towers_lac_inland.csv Cable layers (shapefiles/GeoJSON, imported via Layer → Add Layer → Add Vector Layer): Submarine cables (global, filtered rfs_year <= 2015): TeleGeography, submarine_cable/Submarine_cables.geojson Submarine cables (China): China/submarine_cables_china.gpkg Submarine cables (Japan): China/submarine_cables_japan.gpkg Terrestrial/fiber optic cables: ITU, terrestrial_cable/itu_transmission_lines.geojson Fiber optic cables (China): China/fiber_optic_cables_china.gpkg Boundary layers: World map (countries): QGIS built-in (world_map.gpkg) China boundary: China/cn.gpkg Japan boundary: Japan/gm-jpn-bnd_u_2_1/polbnda_jpn.shp Philippines boundary: PSA NAMRIA, phl_adm_psa_namria_20231106.shp All CSV layers were clipped to country boundaries via Vector → Clip. The OSM Standard basemap was added using Plugins → QuickMapServices → OSM Standard. The cable data were sourced from shapefiles. Submarine cable shapefiles were obtained from TeleGeography, and terrestrial cable shapefiles from the ITU.		
Figure 2.4	Figure 2.7.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 525)	
Figure 2.5	Figure 2.8.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 557)	
Figure 2.6	Figure 2.9.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 593)	
Figure B2.1.1	Figure 2.b1.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 2228)	
Figure 2.7	Figure 2.10.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 283)	Same as Figure ES.5

Figure 2.8	Figure 2.11.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 56)	
Figure 2.9	Figure 2.12.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 234)	Same as FigureES.6
Figure 2.A1	Figure 2.A1.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 90)	
Figure 2.A2	Figure 2.A2.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 136)	
Figure 3.1	Figure 3.1.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do	
Figure 3.2	Figure 3.2.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 637)	
Figure B3.1.1	Figure 3.b1.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 680)	
Figure 3.3	Figure 3.3.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 723)	Same as FigureES.7
Figure 3.4	Figure 3.4.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 814)	Same as FigureES.8
Table 3.1	Table 3.1.xlsx	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 994)	
TableB3.2.1	Table 3.b1.xlsx	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 1559)	

Figure B3.2.1	Figure 3.b2.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 1375)	
Table 3.2	Table 3.2.xlsx	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 1077)	
Figure 3.5a	Chapter3_Figure5a.png	Python_Chap 1~6.ipynb	Same as FigureES.9
Figure 3.5b	Chapter3_Figure5b.png	Python_Chap 1~6.ipynb	
Figure 3.6	Figure 3.6.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 862)	
Figure 3.7	Figure 3.7.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 905)	
Table 3.3	Table 3.4.xlsx	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 1028)	
Table 3.A1	Table 3.A1.xlsx	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 957)	
Figure 3.A1	Figure 3.A1.png	STATA_Chap 2,3,ES, Table 3.1 ~ 3b1.do (Line 1180)	
Figure 3.1a	Data and shapefiles provided in Data \FigureData\ Figure 3.S1 The Roads of Hispaniola\Materials\ Shapefiles Road network data from OpenStreetMap (haiti-and-domrep-250701.osm.pbf) were downloaded from GeoFabrik, https://download.geofabrik.de/central-america/haiti-and-domrep.html#, downloading directly from the link for Haiti and Dominican Republic for July 1, 2025, converted to a shapefile and visualized in QGIS. Administrative boundaries shapefile was obtained from the World Bank Cartography unit (https://datacatalog.worldbank.org/int/search/dataset/0038272/world-bank-official-boundaries) Population data were downloaded from WorldPop, https://data.worldpop.org/GIS/Population/Global	Map S3.1.1a, b & c — Original map for this publication. Data and shapefiles provided in Data\FigureData\Figure 3.S1 The Roads of Hispaniola\Materials\Shapefiles. The map was produced in QGIS by loading three layers: road_network.shp, national_borders.shp, and subnational_results_b_c.shp. For map a, the road network layer was styled using a Categorized symbology on the highway column, grouping OSM road classifications into three visual categories (motorway/trunk/primary, secondary/tertiary, and residential/unclassified) with decreasing line weights. For maps b and c, the subnational layer was styled using a Graduated symbology on the density and cpc columns respectively, with 10 classes using	
Figure 3.S1b			
Figure 3.S1c			

	_2015_2030/R2025A/2025/HTI/v1/100m/constrained/hti_pop_2025_CN_100m_R2025A_v1.tif and https://data.worldpop.org/GIS/Population/Global_2015_2030/R2025A/2025/DOM/v1/100m/constrained/dom_pop_2025_CN_100m_R2025A_v1.tif, downloading directly from the link for Haiti and the Dominican Republic for 2025, and processed and visualized in QGIS. Road density and assets per capita data are the combination of the datasets above and the results of the analysis from results_v4.csv (https://datacatalog.worldbank.org/int/data/dataset/0067070/transport_infrastructure_stock_and_value), processed and visualized in QGIS	Natural Breaks (Jenks) and a Spectral (reversed) color ramp ranging from blue (lowest) to red (highest).	
Figure 4.1	Figure 4.1. Electric Power System Architecture On-grid and Off-grid.jpg	" INFCE Files - INFCE Documents\ReproducciblePackage\Code\CodesToBeShared\Figure 4.1. Electric Power System Architecture On-grid and Off-grid.pptx"	Powerpoint File
Figure 4.2	Chapter4_Figure2.png	Python_Chap 1~6.ipynb	
Figure 4.3	Chapter2_Figure2_Distribution_of_power_generation_capacity.png	R_Chap 2,5.R	
Map 4.1	Chapter4_Figure4.png	Python_Chap 1~6.ipynb	
Map 4.2a	Chapter4_Figure5_BRA.png	Python_Chap 1~6.ipynb	
Map 4.2b	Chapter4_Figure5_NGA.png	Python_Chap 1~6.ipynb	
Map 4.3a	Chapter4_Figure6_BRA.png	Python_Chap 1~6.ipynb	
Figure 4.3b	Chapter4_Figure6_NGA.png	Python_Chap 1~6.ipynb	
Map 4.4a	Original file: Figure4_7a_Road.png Map created by map team after sharing the data and code	Python_Chap 1~6.ipynb	
Map 4.4b	Original file: Figure4_7b_Rail.png Map created by map team after sharing the data and code	Python_Chap 1~6.ipynb	

Map 4.5a	Data and shapefiles provided in Data\Raw\FigureData\Figure 4.8 Subnational Distribution of Line Transport Infrastructure\Materials	The map was produced in QGIS using the following layers, all provided in the Materials folder: Boundary layers (loaded via Layer → Add Layer → Add Vector Layer): Background world boundaries: borders_background.shp Uzbekistan and Dominican Republic boundaries: borders_uzbekistan_domrep.shp — obtained from the World Bank Cartography unit Road network layers (loaded via Layer → Add Layer → Add Vector Layer): Uzbekistan roads: uzbekistan_roads.shp — sourced from OpenStreetMap via GeoFabrik (https://download.geofabrik.de/asia/uzbekistan.html) Dominican Republic roads: domrep_roads.shp — sourced from OpenStreetMap via GeoFabrik (https://download.geofabrik.de/central-america/haiti-and-domrep.html) Population raster layers (loaded via Layer → Add Layer → Add Raster Layer): Uzbekistan population 2025: uzbekistan_population_2025.tif — sourced from WorldPop, 100m constrained estimate, 2025 (https://data.worldpop.org/GIS/Population/Global_2015_2030/R2025A/2025/UZB/v1/100m/constrained/uzb_pop_2025_CN_100m_R2025A_v1.tif) Dominican Republic population 2025: domrep_population_2025.tif — sourced from WorldPop, 100m constrained estimate, 2025 (https://data.worldpop.org/GIS/Population/Global_2015_2030/R2025A/2025/DOM/v1/100m/constrained/dom_pop_2025_CN_100m_R2025A_v1.tif) Load all layers, then arrange them in the Layers panel in this order from top to bottom: country boundaries (borders_uzbekistan_domrep), road networks (both countries), population rasters (both countries), background world boundaries (borders_background)	
Map4.5b	Road network data from OpenStreetMap were downloaded from GeoFabrik, https://download.geofabrik.de/asia/uzbekistan.html# and https://download.geofabrik.de/central-america/haiti-and-domrep.html#, downloading directly from the link, converted to a shapefile, and visualized in QGIS. Population data were downloaded from WorldPop, https://data.worldpop.org/GIS/Population/Global_2015_2030/R2025A/2025/UZB/v1/100m/constrained/uzb_pop_2025_CN_100m_R2025A_v1.tif and https://data.worldpop.org/GIS/Population/Global_2015_2030/R2025A/2025/DOM/v1/100m/constrained/dom_pop_2025_CN_100m_R2025A_v1.tif, downloading directly from the link for Uzbekistan and the Dominican Republic for 2025, and processed and visualized in QGIS. Administrative boundaries shapefile was obtained from the World Bank Cartography unit (https://datacatalog.worldbank.org/int/search/dataset/0038272/world-bank-official-boundaries)		
Figure 4.9		" INFCE Files - INFCE Documents\ReproduciblePackage\Code\CodesToBeShared\Figure4.9-DigitalArchitecture.pptx"	Staff elaboration.
Figure 4.5	Same as Figure 2.3		

Figure 4.6	Figure_4_11_Numbers_of_IXPs_by_Region_and_Capacity.png	DigitalFigures.R Line 425 - 531	
Figure 4.7	Figure_4_12_People_per_Fiber_km_and_Fixed_Download_Speed_by_Region.png	DigitalFigures.R Line 537 - 664	
Figure 4.8	Figure_4_13_Countries_by_Number_of_Submarine_Cable_Landing Points.png	DigitalFigures.R Line 327 - 418	
Map 4.6	Raw data illustration, proprietary data Data stored in NDA\Digital\Map 4.6 Digital Infrastructure in Africa, 2025 Data Source: Multiple sources using data from proprietary data. Telegeography (https://www2.telegeography.com/); GlobalData (https://www.globaldata.com/); and publicly available data from TowerXchange (https://infraxchange.com/) and OpenCellId (https://www.opencellid.org/downloads.php) Access year: 2025 Availability: Raw and cleaned data for the digital sector is compiled by the project team from public and proprietary data. Confidential. If needed, please contact Estefania Belen Vergara Cobos (evergaracobos@worldbank.org) for application details. The map was produced in QGIS using the following layers: Point layers (CSV, imported via Layer → Add Layer → Add Delimited Text Layer): Mobile cell towers: mobiles cells/ct_clipped_africa.csv Data centers: data centers/dc_clipped_africa.csv Cable layers (shapefiles, imported via Layer → Add Layer → Add Vector Layer): Submarine cables: TeleGeography, submarine cables/submarine_cables_clipped_africa.shp Terrestrial fiber optic cables: ITU, fiber optic cables/itu_transmission_lines_clipped_africa.shp Point layers (shapefiles/GeoJSON, imported via Layer → Add Layer → Add Vector Layer): Internet Exchange Points: ITU, ixp/itu_ixp_clipped_africa.shp / ixp/ITU_ixp.geojson Boundary and reference layers: Africa boundary: base/africa.shp Subnational boundaries: GSAP 2021, base/gsap_2021_clipped_africa.shp Population raster: base/pop_2025.tif (loaded via Layer → Add Layer → Add Raster Layer) All CSV layers were clipped to the Africa country boundary via Vector → Geoprocessing Tools → Clip. The OSM Standard basemap was added using Plugins → QuickMapServices → OSM Standard.	Map team recreated
Map 4.7	Raw data illustration, proprietary data Data stored in NDA\Digital\Map4_7 Data Source: Multiple sources using data from proprietary data. Telegeography (https://www2.telegeography.com/); GlobalData (https://www.globaldata.com/); and publicly available data from TowerXchange (https://infraxchange.com/) and OpenCellId (https://www.opencellid.org/downloads.php) Access year: 2025		

	Availability: Raw and cleaned data for the digital sector is compiled by the project team from public and proprietary data. Confidential. If needed, please contact Estefania Belen Vergara Cobos (evergaracobos@worldbank.org) for application details. Each CSV file for the different infrastructure layers, except cables, was imported into QGIS using Layer → Add Layer → Add Delimited Text Layer. The layers were then clipped in QGIS using Vector → Clip, with the input data intersected with the corresponding country boundary. Maps were incorporated from QGIS itself by using Plugins → Manage and Install Plugins → QuickMapServices → OSM Standard. The cable data were sourced from shapefiles. Submarine cable shapefiles were obtained from TeleGeography, and terrestrial cable shapefiles from the ITU.		
Table 4A.1			Staff elaboration.
Table 4B.1			Staff elaboration.
Figure 5.1	Chapter5_Figure1_Unit Cost of Fossil and Nuclear Technologies.png	R_Chap 2,5.R	Minor differences from the reported figure arise from the choice of random seed, but the overall conclusion remain

			s the sam e.
Figur e 5.2 a	Chapter5_Figure2a_Unit Cost of Selected Renewable Technologies(solar PV).png	R_Chap 2,5.R	
Figur e 5.2 b	Chapter5_Figure2b_Unit Cost of Selected Renewable Technologies (Wind Power).png	R_Chap 2,5.R	
Figur e 5.3	Chapter5_Figure3_Installed Cost of Hydro Power 2016-2023.png	R_Chap 2,5.R	
Figur e 5.4	Chapter5_Figure4_Unit Cost for Transmission Lines Million USD per km.png	R_Chap 2,5.R	Min or diff ere nce s fro m the rep ort ed figu re aris e fro m the cho ice of ran do m see d, but the ove rall con clus ion rem ain s the sam e.

Figure 5.5 a, b	Raw data illustration, proprietary data Data and code shared in NDA\Transport Data source: Global Data URL: https://www.globaldata.com/ Access year: May, 2025 Availability: proprietary data, purchased data by Infrastructure Chief Economist Office		
Figure 5.6 a,b	Raw data illustration, proprietary data Data and code shared in NDA\Transport Data source: Global Data URL: https://www.globaldata.com/ Access year: May, 2025 Availability: proprietary data, purchased data by Infrastructure Chief Economist Office		
Figure 5.7 a,b	Raw data illustration, proprietary data Data and code shared in NDA\Transport Data source: Global Data URL: https://www.globaldata.com/ Access year: May, 2025 Availability: proprietary data, purchased data by Infrastructure Chief Economist Office		
Figure 5.8	Data and shapefiles provided in Data\Raw\FigureData\Figure 5.8 Modelling Results Unit Cost of Roads \ regression_results_standardized.xlsx To obtain the results, using proprietary data from Global Data. Code is shared in NDA\Transport.	Visualization is stored in the excel file	
Figure 5.9	Data and shapefiles provided in Data\Raw\FigureData\ Figure 5.9 Modelling Results Unit Cost of Railways\ regression_results_standardized.xlsx To obtain the results, using proprietary data from Global Data. Code is shared in NDA\Transport.	Visualization is stored in the excel file	
Figure 5.10	Figure_5_10_Costs_of_Cell_Tower_by_Region.png	DigitalFigures.R Line 670 - 747	
Figure 5.11	Figure_5_11_Costs_of_Data_Centers_by_Region.png	DigitalFigures.R Line 752 - 858	
Figure 5.12	Figure_5_12_Costs_of_Terrestrial_FOC_by_Region.png	DigitalFigures.R Line 866 - 966	
Figure 5.13	Figure_5_13_Costs_of_Terrestrial_FOC_by_Region.png	DigitalFigures.R Line 974 - 1093	

Table 5.A			Staff elaboration.
Table 5.B			Staff elaboration.
Table 5.A2a			Staff elaboration.
Map 6.1	"Chapter6_Figure1.csv" Original map: Chapter6_Figure1_temp.png Recreated map uses the csv output file.	Python_Chap 1~6.ipynb	Map team recreated
Figure 6.1	Chapter6_Figure2a_Energy_temp.png	Python_Chap 1~6.ipynb	
Figure 6.2	Chapter6_Figure2b_EnergyPC_temp.png	Python_Chap 1~6.ipynb	
Map 6.2a	Chapter6_Figure3a_temp.png	Python_Chap 1~6.ipynb	
Map 6.2b	Chapter6_Figure3b_temp.png	Python_Chap 1~6.ipynb	
Map 6.3	"Chapter6_Figure4.csv" Original map: Chapter6_Figure4_temp.png Recreated map uses the csv output file.	Python_Chap 1~6.ipynb	Map team recreated
Figure 6.3	Chapter6_Figure5_Transport.png	Python_Chap 1~6.ipynb	
Figure 6.4	Chapter6_Figure6_TransportPC.png	Python_Chap 1~6.ipynb	

Map 6.4a	Data and shapefiles provided in Data\Raw\FigureData\ Figure 6.7 Subnational Distribution of Transport Nigeria\Materials Administrative boundaries shapefile was obtained from the World Bank Cartography unit (https://datacatalog.worldbank.org/int/search/dataset/0038272/world-bank-official-boundaries) Road density, rail density, and transportation asset density data are the combination of the administrative boundaries and the results of results_v4.csv (https://datacatalog.worldbank.org/int/data/dataset/0067070/transport_infrastructure_stock_and_value), processed and visualized in QGIS.	Open QGIS and load the layers 6.4a – Road Density Layer: road.shp | Value field: road_density Symbology: Graduated → Sequential color ramp (oranges/browns) → 5 classes, Quantile 6.4b – Rail Density Layer: rail.shp | Value field: rail_density Symbology: Graduated → Sequential color ramp (blues/purples) → 5 classes, Quantile 6.4c – Transportation Asset Density Layer: assetdensity.shp | Value field: variabledensity Symbology: Graduated → Sequential color ramp (greens/teals) → 5 classes, Natural Breaks (Jenks)	
Map 6.4b			
Map 6.4c			
Map 6.5	Same as Map S3.1.1 (c)		
Map 6.6	Figure_6_9_Spatial_Distribution_of_Digital_Capital_Assets.png	DigitalFigures.R Line 32-110	
Figure 6.5	Figure_6_10_Digital_Capital_Assets_by_Region_and_Component.png	DigitalFigures.R Line 111-214	
Figure 6.6	Figure_6_11_Per_Capita_Digital_Capital_Assets_by_Region_and_Component.png	DigitalFigures.R Line 221-329	
Map 5.7a	Figure 6.12 (A) Subnational Distribution of Digital Capital Assets in Ecuador.png	figure6.12_code.R	
Map 5.7b	Figure 6.12 (B) Subnational Distribution of Digital Capital Assets in Ecuador.png	figure6.12_code.R	
Table 7.1			Results from paper Foster, Gorgulu, Jain, Stra
Table 7.2			
Table 7.3			

			ub, and Vagliasindi (2025)
Figure 7.S1			
Figure 7.S2			Results from paper Gerrits et al. 2025
Figure 7.S3			
Table 7.S1			
Figure 7.S4	Figure7S4_impliedE_GDP_correlation.png	Chapter7Appendix2_EnergyMeta.ipnyb	
Figure 7.S5	Figure7S5_impliedE_boxplot_Region_r.png	Chapter7Appendix2_EnergyMeta.ipnyb	
Appendix 7.1			Results from paper Foster, Gorgulu, Jain, Straub, and Vagliasindi (2025)