DIAL Online Catalog

Contents:

DIAL's Online Catalog is a resource for T4D practitioners to discover and evaluate open source digital public goods that are oriented toward achieving the SDGs. The catalog is built to support DIAL's Digital Investment Framework

Contents:

How to use the catalog

DIAL's online catalog is designed to be flexible and give users multiple starting points for discovering and evaluating products. The catalog has a powerful filtering system that allows users to clearly see and understand how Sustainable Development Goals, Use Cases, Workflows, Building Blocks and products connect.

On the main page of the application, the user will see a navigation bar:

SDGs 17	Use Cases 18	Workflows 16	Building Blocks 23	Products 106	Organizations 217

This navigation bar allows the user to see the various *sustainable development goals*, *use cases*, *workflows*, *building blocks*, and *products* in the catalog. Click on any section, and the main window will display the entries for that category.

The *filtering* functionality allows the user to select the use cases, SDGs, building blocks or specific products that they are interested in and see the items that match that filtering criteria. For example, if a user selects a specific SDG, the catalog will show the use cases, workflows, building blocks, and products that are oriented toward addressing that SDG. See the *filtering* section for more information.

The online catalog also tracks *organizations*. These organizations are NGOs and non-profits that have endorsed DIAL's Digital Principles and are working around the world. Users can see other organizations working in their target geographies.

Finally, the catalog tracks mobile network aggregators (part of the organizations page). This allows users to see what mobile network services are available in different countries.

1.1 Sustainable Development Goals

The SDGs comprise 17 goals and 169 targets representing global priorities for investment in order to achieve sustainable development. The SDGs were set in 2015 by the United Nations General Assembly and intended to be achieved by the year 2030.

SDGs each have specific Targets. These are measurable goals that allow people to determine if an SDG has been achieved.

In the online catalog SDGs are linked to specific *products*. These links help users understand the SDGs that the products are oriented to addressing.

SDG targets are also linked to *use cases*. A user can see what use cases are connected to a particular target and for a specific use case, can see which SDGs and SDG targets that the use case is addressing.

Visit the *Filters page* to see how the filters can be used to create powerful searches that connect SDGs to Use Cases, Workflows, Building Blocks, and Products.

1.2 Use Cases

A Use Case is the steps that an individual or system will undertake in order to achieve a business objective.

Characteristics

- User-centric description of the steps or user journeys required to deliver an outcome
- Identifies one or more SDG Targets as its business objective
- Describes the generic WorkFlows and business processes involved in each step in the Use Case
- Typically sector-specific
- Able to be improved through digital technology

Each Use Case model describes primary actors, key steps involved in achieving a specified business objective, descriptions of the WorkFlows and ICT Building Blocks involved in each step, and mappings to SDG Targets. The list of Use Case models is not exhaustive and more will be added in future releases.

In the online catalog, use cases are linked to *SDG targets* to show which development targets the use case is designed to address. A use case is also linked to *workflows* to show what business processes are needed to implement that use case.

Visit the *Filters page* to see how the filters can be used to create powerful searches that connect SDGs to Use Cases, Workflows, Building Blocks, and Products.

1.3 Workflows

A workflow is a generic business process that contributes to *Use Cases* across multiple sectors and can be developed as a set of organizational capabilities.

Characteristics

- Common business process used to help an organization carry out its overall function
- Applicable to multiple Use Cases in various sectors
- Powered by one or more ICT Building Blocks

Each WorkFlow includes a description, sector-specific examples, and mappings to Use Cases defined in the catalog. The list of WorkFlows is not exhaustive, and more will be added in future releases.

Workflows are mapped to *Building Blocks* to show the specific technology functions that must be implemented in order to accomplish the business function.

Visit the *Filters page* to see how the filters can be used to create powerful searches that connect SDGs to Use Cases, Workflows, Building Blocks, and Products.

1.4 Building Blocks

Building blocks are enterprise-ready, reusable software components providing key functionality facilitating generic WorkFlows across multiple sectors.

Characteristics

- Reusable software components
- Can be open-source, commercial off-the-shelf (COTS), or freely available with open access to data
- Facilitates one or more generic WorkFlows
- Applicable to multiple UseCases across multiple sectors
- Interoperable with other ICT Building Blocks
- Designed for scalability and extensibility
- Standards-based

Each ICT Building Block page includes a description, key digital functionalities, sector-specific examples, example software products, and mappings to WorkFlows defined in the catalog.

The list of ICT Building Blocks links to *software products*, which are candidate products that meet some or all of the criteria for that building block. These mappings are not exhaustive and more will be added in future releases. Please note that the software product examples are for illustrative purposes only. Further mapping and ranking of existing products based on maturity, sustainability and applicability to the ICT Building Blocks will be addressed over time.

Visit the *Filters page* to see how the filters can be used to create powerful searches that connect SDGs to Use Cases, Workflows, Building Blocks, and Products.

1.5 Products

This catalog contains an extensive list of digital goods that are designed to achieve the SDGs. These products are all open-source and can be freely used. The list of candidate products in the catalog are sourced from several organizations, including DIAL's Open source center, Digital Square, and Unicef.

The products listing page shows many different attributes of the product. Information on how to read these product cards can be found *here*. Clicking on the card will load a page with detailed information about the product.

Each product page in the catalog provides a description of the product, a link to the source code repository, data on the maturity of the product, which SDGs the product is designed to address, any building blocks that this product may meet the criteria for. If applicable, it will also show any other products that this product interoperates with.
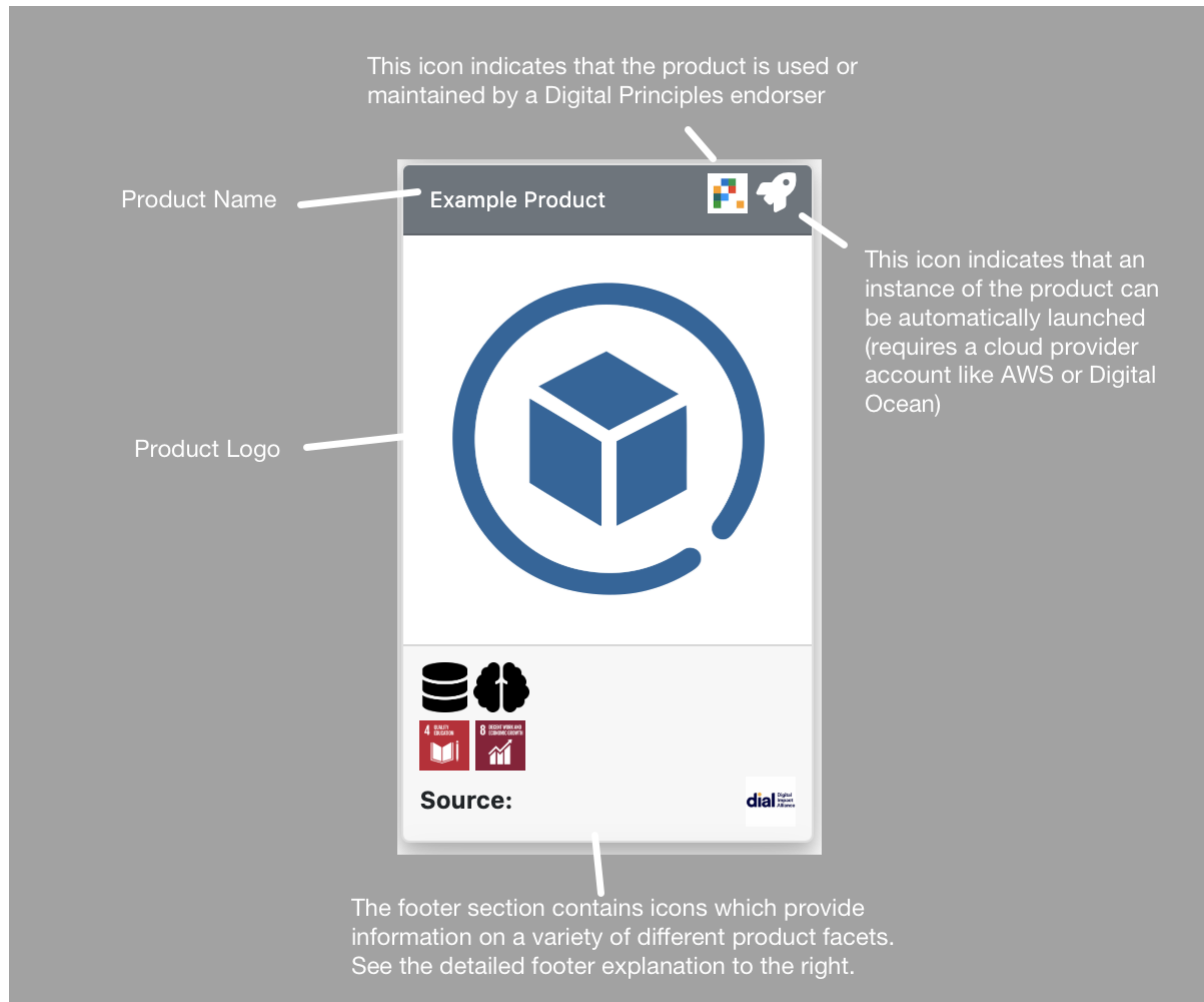
For select products in the catalog, it is possible to automatically launch an instance of that product for evaluation purposes. For more information, see the *product launcher* page.

Visit the *Filters page* to see how the filters can be used to create powerful searches that connect SDGs to Use Cases, Workflows, Building Blocks, and Products.

1.5.1 Reading the Product Cards

The product cards contain a wide range of information about a software product, available at a glance. This data is displayed in icon format and more detailed information about any of these icons can be seen by hovering over the icon.

The following diagrams show how the cards are laid out and what information is shown.
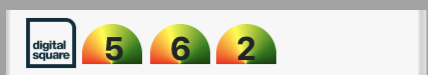
This icon indicates that the product is used or maintained by a Digital Principles endorser

Product Name

Example Product

This icon indicates that an instance of the product can be automatically launched (requires a cloud provider account like AWS or Digital Ocean)

Product Logo

Source:

The footer section contains icons which provide information on a variety of different product facets. See the detailed footer explanation to the right.

The footer of the product card contains 3 rows. Hover over any icon to get more information about the data that is displayed. The first two rows may contain information about what Sustainable Development Goals this product addresses, which building blocks the products are a candidate for, product maturity information as measured by DIAL's Open Source Center or Digital Square, and what other products this product interoperates with. The bottom row will always contain information about data sources for this product - currently we retreive product data from the DIAL Open Source Center, Digital Square, and Unicef's Global Goods Candidate list.

1.5.2 Product Launchers

For a subset of products in the online catalog, it is possible to create and launch an instance of that product on an AWS or Digital Ocean server. This allows a user of the catalog to test and evaluate the product directly.

Products that can be auto-launched have an launch icon:

To launch an instance of a product, navigate to the product page. At the bottom of the page is a section 'Automatic

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Launch'. The user must enter an identifier for the instance of the product. The product name will be appended to this identifier. For example, if the identifier is 'Test' and the product is iHRIS, the name of the instance will be 'Test-iHRIS'.

The user must then specify the platform that the instance should be created on. Currently, the catalog supports AWS and Digital Ocean. Additional platforms will be added in the future. The user must have an account on this platform and create an access token (see below). Once the user has specified the platform and access token, select Launch and the product will be created.

The user can see information about the launched instance of the product on the Deploys page. This page provides information about the status of the instance, any messages, and the IP address of the new server. The deploys page also allows the user to create an ssh login to the server.

Access Tokens

- Click this link for information on how to create an access token on Digital Ocean
- Click this link for information on how to create an access token on AWS

1.6 Organizations

The DIAL online catalog currently tracks two different types of organizations:

- Endorsers of DIAL's Digital Principles
- Mobile Network Aggregators/Integrators

Users can see a list of these organizations and can also view the organizations using the interactive *map view*

When using the organization page, users can use *filters* to show organizations that are working in a specific geographic location or in a particular development sector. The filters can also refine the list to show only endorsing organizations or mobile network integrators.

1.6.1 Endorsers

Many organizations working around the world have endorsed a set of 9 Principles for Digital Development. For each of these organizations, the online catalog provides information on whatr countries they work in, where offices are located, and what Development sectors they are focused on. In some cases, these organizations have developed a software or technical product and the catalog provides a link to that product.

1.6.2 Mobile Network Aggregators/Integrators

DIAL has developed a list of mobile network integrators (also called aggregators) that provide mobile service delivery around the world. The online catalog catalog can help users understand which mobile technologies are offered in a specific geography. On the aggregator page, it will show which countries an aggregator works in, which mobile network operators they partner with, and the specific service offerings that they provide.

1.7 Map View

The online catalog has 2 interactive maps that provide an interactive visualization of organizations that have endorsed the Digital Principles and mobile network aggregators.

The map of Digital Principles Endorers allows users to see the main office of each organization. The user can select an organization to see what countries they work in. A user can also filter the organizations shown by the year in which they endorsed the Digital Principles and/or which development sectors they work in.

The map of Mobile Network Aggregators shows which aggregators work in which countries around the world. The user can filter the map by a specific aggregator, or can select a specific mobile network operator to see which countries the aggregator or operator work in. The user can also filter by a specific type of mobile service offered (it will show the countries in which that service is offered)

1.8 Using the filters

The online catalog offers powerful filtering capabilities that allow the user to see how SDGs, Use Cases, Workflows, Building Blocks and Products are connected. The filter also allows users to

The filter is on the left side of the screen:
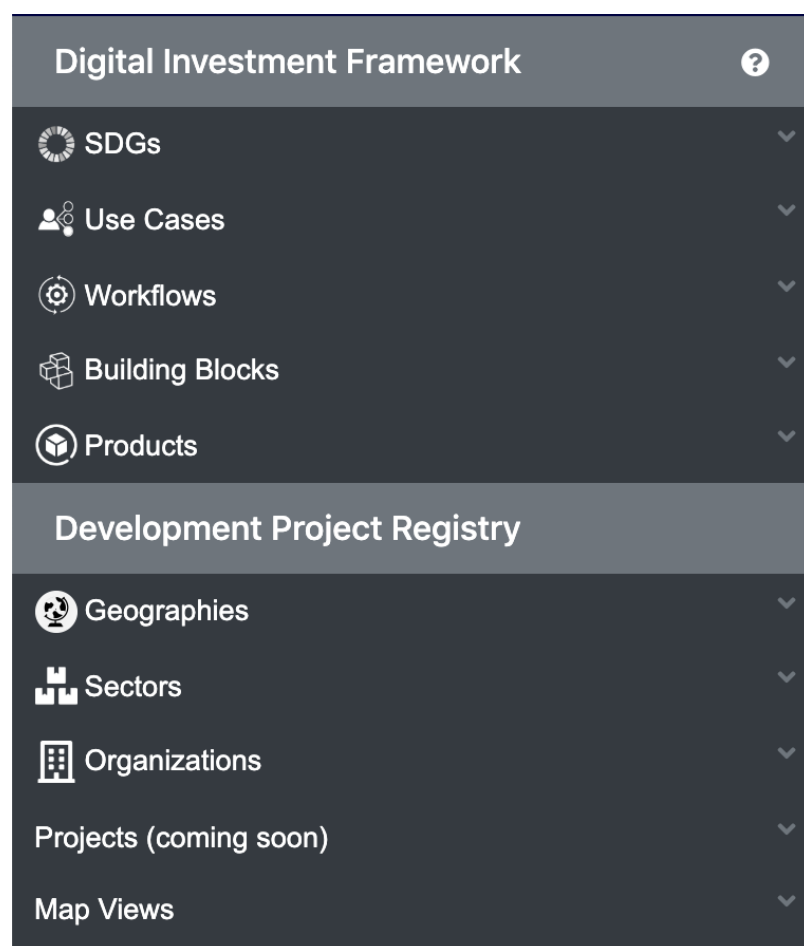
The following diagrams provide information on how to use the filters and what the various icons mean in the filter section. In the case of Products, there are many ways that they can be filtered. The user can see which products have maturity assessments, which ones can be *automatically launched*, and what the source of the product data is (DIAL Open Source Center, Digital Square, or Unicef)
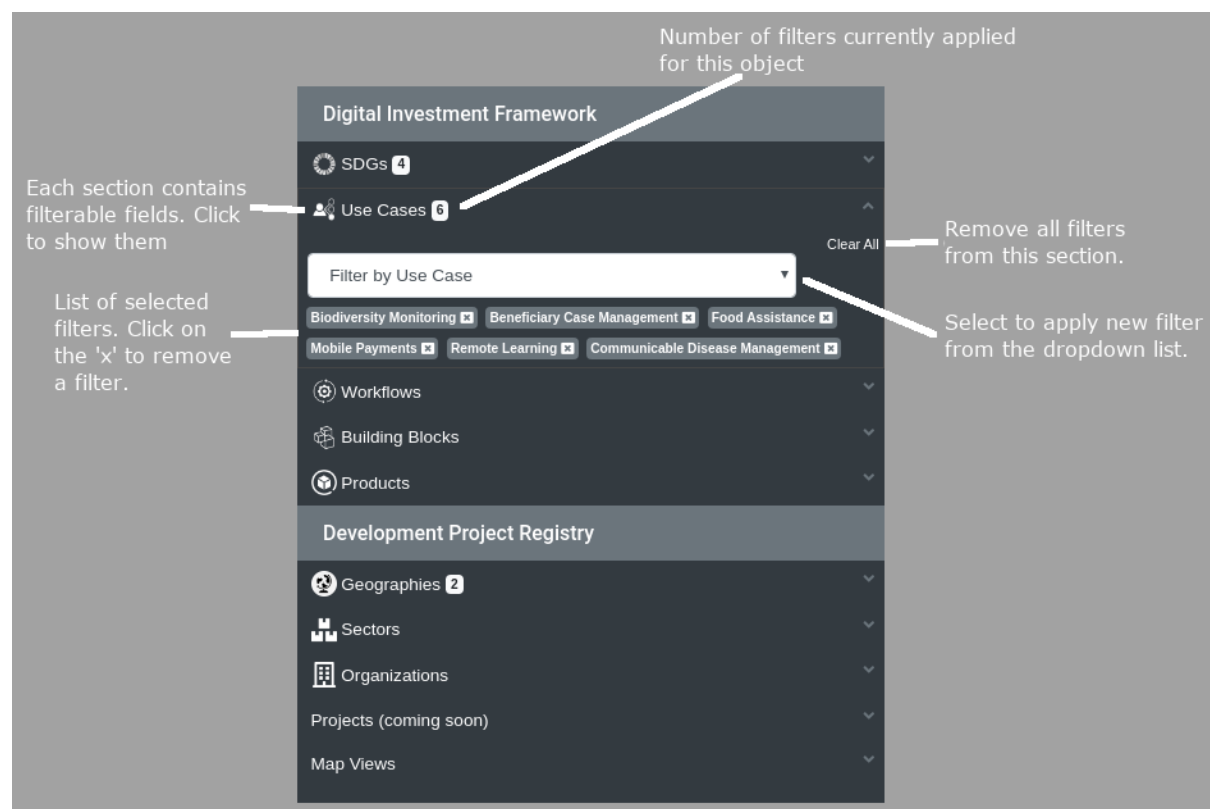
When filters are selected by the user, the list of SDGs, Use Cases, Workflows, Building Blocks and Products will be limited to those that meet the criteria set in the filter. The top navigation bar will show the number of items that meet those criteria:
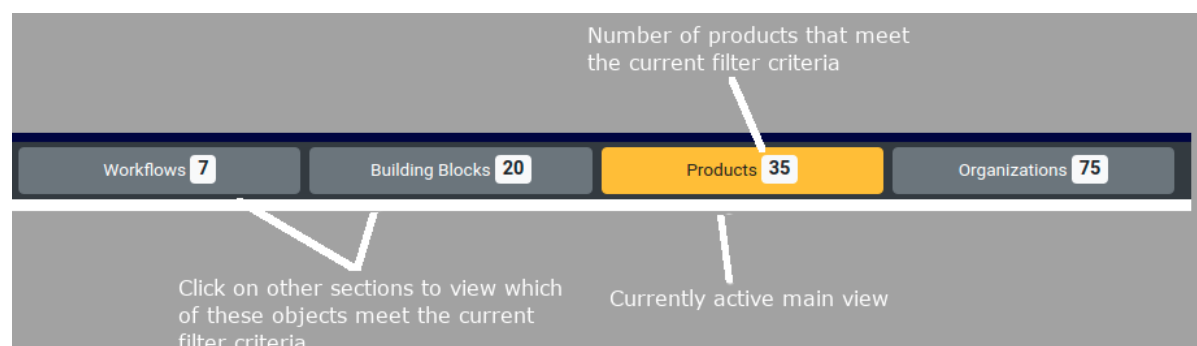
At the top of the screen, the user will also see a detailed list of all of the filters that have been set. The user can remove filters here, as well as in the main filtering section.

1.9 Glossary and Definitions

COTS Commercial off-the-shelf software

Digital services A broad term referring to the electronic delivery of data or functionality.

Digital technologies Platforms, processes, and a range of technologies that underpin modern information and communications technologies (ICT), including the internet and mobile phone platforms, as well as advanced data infrastructure and analytical approaches.

ICT Building Blocks Reusable software components that enable Workflows and Use Cases across multiple sectors.

Open Source

Software developed by informal collaborative networks of programmers and are usually free. Anyone isfreely licensedto u

- Free and Open Source (FOSS) – refers to user's freedom to copy and reuse the software
- Free/Libre Open Source software (FLOSS) - Emphasizes the value of 'libre', i.e., few or no restrictions.

Platform A platform is a group of technologies that are used as a base upon which other technologies can be built or applications and services run. For example, the internet is a platform that enables web applications and services.

SDG Digital Investment Framework (ICT4SDG Framework) A framework consisting of four interrelated layers which can be used to help governments and their partners to take a whole-of-government approach to invest in shared digital infrastructure to strengthen SDG programming across sectors.

SDG Targets Each sustainable development goal has a list of targets which are measured with indicators so that governments systematically align their development goals.

Sustainable Development Goals (SDGs) The SDGs comprise 17 goals and 169 targets representing global priorities for investment in order to achieve sustainable development. The SDGs were set in 2015 by the United Nations General Assembly and intended to be achieved by the year 2030.

Use Cases Define the steps necessary to achieve a business objective contributing to one or more SDG Targets.

Whole-of-government An approach where public service agencies (i.e. governments) work across portfolio boundaries to achieve a shared goal and use an integrated government response to particular issues.

Whole-of-government approach (WGA) Refers to a cross-sectoral and cross-organizational consideration of individuals' needs with reference to delivering digital services in a more integrated and coordinated manner.

Whole of society "Acknowledge the contribution of and important role played by all relevant stakeholders, including individuals, families and communities, intergovernmental organizations and religious institutions, civil society, academia, the media, voluntary associations and, where and as appropriate, the private sector and industry, in support of national efforts for noncommunicable disease prevention and control, and recognize the need to further support the strengthening of coordination among these stakeholders in order to improve the effectiveness of these efforts;" (Source: 2011 Political Declaration, (37))

Workflows Are generic business processes, such as 'client communication' or 'procurement', that support the delivery of a Use Case.

1.10 Installing and Configuring the Catalog

This catalog can be deployed by any organization that wishes to curate their own list of digital public goods. All of the code is publicly available on the Product Registry repository

Please note that these instructions are for users who have a technical background and are familiar with Rails applications and Docker deployments

To configure and run an instance of the online registry/catalog, perform the following steps:

- Clone the product-registry repository into a directory on your server or development environment

- Configure environment variables for the application. The application requires several variables to be set in your environment. We have provided a sample shell script that will set the appropriate variables for development, test, or production environments. The variables are as follows:

- SECRET_KEY_BASE - set a unique secret or password. This is used for user authentication verification

- DATABASE_NAME, DATABASE_USER, DATABASE_PASSWORD - connecting data for the Postgres database. Ensure that these values match the settings in the docker-compose.yml file for the database instance (described below)

- TEST_DATABASE_NAME, TEST_DATABASE_USER, TEST_DATABASE_PASSWORD - to run the unit or integration tests, these values need to be set and point to a test database instance

- ESRI_CLIENT_ID, ESRI_CLIENT_SECRET - the application uses ESRI for geographic data. You can sign up for an account and access token.

- GOOGLE_TRACKER - insert a tracking id to use Google analytics

- JENKINS_URL, JENKINS_USER, JENKINS_PASSWORD - in order to use the product launcher functionality, the application must connect to a running Jenkins instance.

- MAILGUN_API_KEY, MAILGUN_DOMAIN - the application uses mailgun to send email notifications to users. Use mailgun account data here to enable this functionality

- CAPTCHA_SITE_KEY, CAPTCHA_SECRET_KEY - the main signup page uses Captcha. Enter your captcha credentials to use this functionality

- GITHUB_USERNAME, GITHUB_PERSONAL_TOKEN - the appication will automatically read data from any GitHub repositories that are connected to products. In order to do that, enter a Github username and API Token.

- Edit the docker-compose.yml file to set the database username and password.

- Build and run the application using the following docker-compose commands from the root directory of the application:

- docker-compose build

- docker-compose up -d

- Alternatively, to run the app outside of docker-compose, you can use the following commands:

- rails db:run_if_no_db && rails db:create_db_with_public_data

- rails db:migrate

- rails assets:precompile RAILS_ENV=production

- rails server -e production

- Once the application is built and started, it will be available on port 3000. Please note that the docker-compose file also uses nginx and certbot to serve the application using SSL/Port 443. Please remove these entries if not needed.

- A default user account with administrator privileges is created automatically. The credentials are admin@admin-user.org/admin-password

- The application also allows a default domain name to be set. Only users that have email addresses associated with that domain will be able to be administrators of the site. To set this:

- Create an organization entry for your organization. Note the slug that is created for this organization

- Navigate to the settings page (<online catalog URL>/settings)

- Create a new setting called 'Default Organization'. The value for this setting will be the slug for your organization.

C

COTS, **11**

D

Digital services, **11**
Digital technologies, **11**

I

ICT Building Blocks, **11**

O

Open Source, **11**

P

Platform, **11**

S

SDG Digital Investment Framework
      (*ICT4SDG Framework*), **11**
SDG Targets, **11**
Sustainable Development Goals (*SDGs*), **11**

U

Use Cases, **11**

W

Whole of society, **11**
Whole-of-government, **11**
Whole-of-government approach (*WGA*), **11**
Workflows, **11**