SDG Financing Tool (SDG-FiT) User Guide

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Contributions

The SDG Financing Tool is the outcome of an IMF project conducted by a team of economists in its Fiscal Affairs Department (FAD), led by A. Tieman and D. Benedek with the supervision of A. Senhadji. The team that worked on the project and the application of the tool to cases studies includes by D. Bartolini, R. Perrelli, O. Akanbi, N. Nersesyan, H. Chai, S. Cerovic, and Y. Kim. This user manual is drafted by D. Bartolini, A. Ceber, and Y. Kim.

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I. Overview

1. Description of the SDG Financing Tool (SDG-FiT)

The Sustainable Development Goals (SDGs) are a set of seventeen global development targets adopted by the member countries of the United Nations (UN) in September 2015. The SDGs will guide the global development agenda through 2030. The IMF has launched several initiatives to enhance support for its member countries as they pursue the SDGs. The cost of reaching the SDGs in five key economic sectors by 2030 was estimated for 49 low-income developing countries, 72 emerging market economies and 34 advanced economies in an IMF Staff Discussion Note (SDN) published in 2019.¹ Following the quantification of the SDG targets, FAD has developed a tool to monitor progress and assess financing options to achieving these goals.

The SDG Financing tool ("SDG-FiT") is an online tool that provides a framework for building financing strategies for the SDGs in a macroeconomically-consistent way. Specifically, the tool allows for evaluating financing needs to achieve the five sectors of the SDGs and assessing additional financing options to close the financing gap.

The five SDG sectors that the tool focuses on are as follows:

- **Health**: Ensuring healthy lives and promoting well-being for all at all ages.
- **Education**: Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all.
- Roads: Providing access to a safe, affordable, and sustainable transport system.
- **Electricity**: Ensuring access to affordable, reliable, sustainable, and modern energy for all.
- Water and Sanitation: Ensuring availability and sustainable management of water and sanitation for all.

The framework is underpinned by a dynamic model over a 30-year horizon and consists of a set of accounting identities in the real, fiscal, and external sectors to ensure macroeconomic consistency. The key relationship in the macroeconomic framework is between investment in human capital and infrastructure and economic growth (Figure 1). This relationship is specified by

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¹ Gaspar, V., D. Amaglobeli, M. Garcia-Escribano, D. Prady, and M. Soto, 2019, "Fiscal Policy and Development: Human, Social, and Physical Investment for the SDGs," Staff Discussion Note 19/03. International Monetary Fund, Washington, D.C.

the Cobb-Douglas production function (See Benedek et al., 2021 for more detail). The framework ensures a feedback loop between investment and economic growth: a rise in output increases government revenue, which in turn expends the envelope of finances that can be used to invest in SDGs.

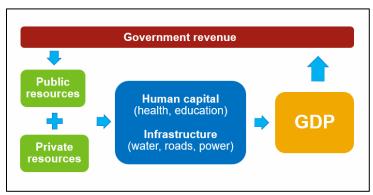


Figure 1. The Macroeconomic Framework

2. Capabilities and Uses

The tool can be used to monitor the performance in achieving the SDG goals in the five sectors and evaluate the impact of different financing options. In particular:

- **Set up a baseline scenario**: Users can assess when the SDGs will be met or the magnitude of the financing gap to achieve the SDGs by a given year (e.g., additional financing needs to reach the SDGs by 2030) under current projections and policies.
- Assess policy scenarios: Users can create policy scenarios that incorporate different financing options, such as revenue mobilization or increased Official Development Assistance (ODA). By creating these policy scenarios, users can compare the different paths towards SDGs within an internally consistent macroeconomic framework.
- **Try different assumptions:** Users can change assumptions on growth projections, efficiency of public investment, and private financing and assess how they affect the path towards SDGs and other macroeconomic variables.

This is not an exhaustive list of capabilities as the tool has the flexibility to accommodate many different assumptions on economic fundamentals and alternative financing options.

The tool does NOT:

- Quantify the cost of achieving the SDG goals they are taken as given.²
- Provide indication on how to implement different financing options or whether these options are feasible given the country's economic circumstances.

² The estimates come from a costing exercise based on the methodology from Gaspar et al. (2019).

II. Getting Started

The SDG-FiT is accessible through the SDG Financing website. This website provides the overview, user guide, links to case studies, and details on the underlying framework.

To start the tool, click on *Launch the Tool* on the upper-right corner.

Once you are in the tool, there are two ways to proceed:

- 1) As a new user, you can create a unique key by selecting the country of your interest and click on *Proceed*. This key will be saved for seven days after the task is created. It is recommended to take a note of this key.
- 2) If you already have an existing key, enter it on the right-hand side and click on **Continue**.

The tool currently supports 107 countries: 63 emerging market economies and 44 low-income developing countries. The country set may change depending on data availability.

Emerging Market Economies		Low Income Developing Countries	
Albania	India	Bangladesh	Nigeria
Algeria	Indonesia	Benin	Rwanda
Antigua and Barbuda	Jamaica	Burkina Faso	São Tomé and Príncipe
Armenia	Jordan	Burundi	Senegal
Azerbaijan	Kazakhstan	Cambodia	Sierra Leone
Bahamas, The	Kuwait	Cameroon	Tajikistan
Bahrain	Malaysia	Central African Republic	Tanzania
Barbados	Maldives	Chad	Togo
Belarus	Mauritius	Comoros	Uganda
Belize	Mexico	Congo, Democratic Republic of	Vietnam
Bolivia	Montenegro, Rep. of	Congo, Republic of	Yemen
Bosnia and Herzegovina	Morocco	Côte d'Ivoire	Zambia
Botswana	Namibia	Djibouti	
Brunei Darussalam	Oman	Eritrea	
Bulgaria	Pakistan	Ethiopia	
Cabo Verde	Panama	Gambia, The	
Chile	Paraguay	Ghana	
Colombia	Peru	Guinea	
Costa Rica	Philippines	Guinea-Bissau	
Croatia	Poland	Kenya	
Dominican Republic	Romania	Kyrgyz Republic	
Ecuador	Saudi Arabia	Lesotho	
Egypt	Serbia	Madagascar	
El Salvador	Seychelles	Malawi	
Equatorial Guinea	South Africa	Mali	
Eswatini	St. Lucia	Mauritania	
Gabon	St. Vincent and the Grenadines	Moldova	
Georgia	Thailand	Mozambique	
Grenada	Turkey	Myanmar	
Guatemala	United Arab Emirates	Nepal	
Guyana	Uruguay	Nicaragua	
Hungary		Niger	

Table 1. List of Countries Supported by the SDG-FiT

III. Step-By-Step Instructions

The SDG-FiT consists of three main components: **Baseline**, **Scenario**, and **Comparison Dashboard**. **Baseline** is a business-as-usual scenario and consists of five panels: **Overview**, **Financing**, **Costing**, **Macro**, and **Advanced Parameter**. **Scenario** is a policy scenario on which the user imposes new financing options and has four panels excluding **Costing** as the cost is fixed between scenarios. These panels contain key inputs and assumptions for the framework, which ensures macroeconomic consistency of financing options through accounting identities.

This section explains how to set up **Baseline** and **Scenario** and to compare their results in **Comparison Dashboard**.

Note on saving and resetting your work:

It is the best practice that the user **saves** their changes in each panel, so that these changes are reflected in the outcome charts and tables. If the user did not save the changes, they will be reminded by a pop-up message.

The user can undo their changes by using the *reset* functionality. There are two reset options: a local (next to each series) and a global reset (for the overall baseline or scenario). The local reset brings back the default value of the associated variable, and the user needs to click on "save" to update the outcomes. On the other hand, the global reset functionality brings back the default values and outcomes for the entire baseline or scenario: If the user is in the baseline, the global reset will revert the changes both in the baseline and scenario. If the user is in scenario, the global reset will revert the changes made only in the scenario panel.

Disclaimer:

The tool is pre-populated with default values. These values do **not** reflect the IMF position nor the views of its member countries. The default values are obtained from publicly available databases (like the IMF World Economic Outlook, or the UN Population). If some values are not available, the tool is prepopulated with place-holder values which needs to be double checked by the user.

Step 1. Setting up a baseline scenario

(1) Select the year for the SDGs to be achieved:

In **Overview**, select the hypothetical year for the SDGs to be met. The default year is 2030, reflecting the target year of the SDGs as specified by the UN agenda. Users can select a more or less ambitious horizon for their analysis. The first year of projection is 2023.

Once the user chooses the planning horizon, the key outcomes will show up on the right side of the page. These outcomes reflect the default data from World Economic Outlook and other sources as detailed in Section 6. There are two outcomes to consider:

- **Year to achieve SDGs**. This displays the year in which the SDG goals would be achieved in the business-as-usual scenario (without additional financing).
- **Financing needs to reach SDGs by 2030**. This displays additional financing needs required to achieve the SDG goals by the selected year (2030 default). Financing needs are on an annual basis and expressed in percentage of GDP. For example, 5% of additional financing needs means the country needs additional financing equivalent to five percent of GDP each year to achieve the goals by the target date.



At the bottom of the page is the macroeconomic indicator table and a government finances table. These tables summarize key macroeconomic indicators and fiscal statistics, including debt.

Macroeconomic Indicators	2023	2033	2053
GDP Per capita (in USD 2022)	6370	9098	25121
Real GDP growth (in percent)	2.5	3.4	3.4
Current account balance (in percent of GDP)	-8.8	-9.0	-9.0
Government finances	2023	2033	2053
(in percent of GDP) Revenues and grants	21.6	22.1	23.9
Primary expenditure	22.2	22.5	25.1
SDG-related	3.6	4.0	6.6
Other	18.5	18.5	18.5
Interest expenditure	3.0	2.5	1.7
	-3.7	-2.9	-2.9
Overall balance			

(2) Edit financing assumptions in the *Financing* tab

Financing covers four financing channels which affect available resources for achieving the SDG goals: (i) **revenues**; (ii) **debt financing** (government debt and fiscal deficit); (iii) **public expenditures**; and (iv) **private financing**. The fields are populated with default values, which the user can adjust as needed. Each panel accompanies a chart visualizing the key metrics in the data panel.

Overview includes a chart "Resources Available for Additional SDG Spending Relative to 2022". The chart shows how much resources are available for the SDGs and whether the resources are from the public or private sectors. Note the resources are measured in comparison to the previous year. For instance, 5% of GDP available in 2025 means the government now has five percentage points more resources compared to 2024 year due to factors such as higher revenues or lower non-SDG spending.

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The user may begin reviewing and editing the data in the following panels:

(i) **Revenues**: The user can specify non-tax revenues and projected grants for three points in time, which will be extrapolated as yearly data. Along with non-tax revenues, the user can indicate the amount of grants the country is expected to receive. This is different from additional financing and only represents the amount of identified grants. Note tax revenues are endogenous and are calculated based on the tax-GDP elasticity and improvement from the tax reform.

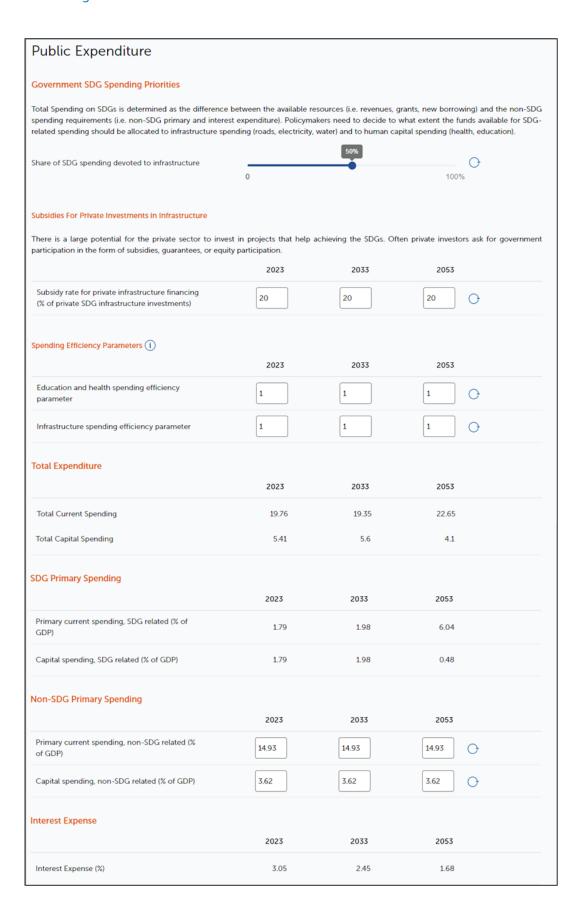


(ii) **Debt Financing**: The user can review projections on overall fiscal deficit, net borrowing, related interest rates, and stock-flow adjustments. Note the user can adjust domestic borrowing (net borrowing from residents) while foreign borrowing (net borrowing from non-resident) is the residual.



(iii) **Public Expenditure**: The user can review assumptions governing the allocation of resources devoted to the SDG goals. The user can also determine subsidy rates for private financing and spending efficiency. In particular, spending efficiency represents a scaling parameter for the transformation of spending in the SDGs into human and physical capital in the production function.³ The default value of the parameter is 1. A number lower than 1 represents a lower efficiency while a number greater than 1 stands for higher efficiency. In addition, the section for Non-SDG Primary spending allows the user to review default values on current and capital spending unrelated to the SDG goals. By increasing (decreasing) these values, less (more) resources will be available for SDG-related spending.

³ To understand the link between spending efficiency and the production function, see Section V of Akanbi et al. (2021).



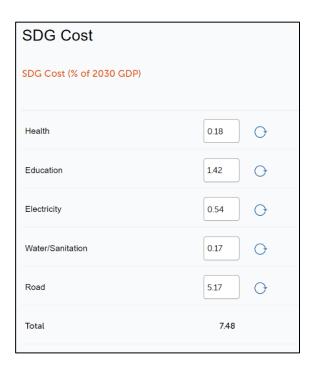
Private Financing: The user can include the possibility that private financing contributes to investment on the SDG sectors.



(3) Review costing assumptions in Costing

The **Costing** panel includes data on the cost of achieving the SDGs by 2030 and the current levels of spending. It includes two panels:

(i) **SDG Cost**: Costing estimates or SDG needs are based on a methodology developed by the IMF (Gaspar et al., 2019). The user can replace them with more elaborated or updated estimates, but care should be taken to ensure consistency in definition and coverage.



(4) Review macroeconomic assumptions in *Macro*

The *Macro* panel consists of three panels: (i) *GDP*, (ii) *External sector*, and (iii) *Inflation/Interest/Exchange rates*.

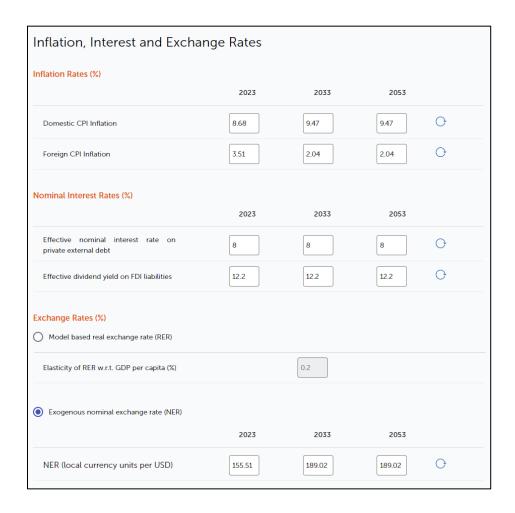
(i) **GDP**: The user can adjust GDP growth rates and input factors such as labor force participation rate and private savings rate. By default, the baseline growth rates are based on the projections from the World Economic Outlook. The user can impose a different growth trajectory using the "calibrate" function. Turning on this function ensures that growth is endogenously determined in the model and matches the exogenous values imposed by the user. Note the growth rate of total factor productivity (TFP) takes the slack between the inputs and outputs. The user should also review labor force participation rate and private savings rate to ensure they correctly reflect the country's circumstances.



(ii) External Sector: This panel summarizes the balance of payment. In Current Account Balance, the user can adjust net remittances, which will adjust trade balance. In Capital and Financial Account Balance, the user can control net foreign direct investment and private sector borrowing.



(ii) *Inflation, Interest and Exchange rates*: The user can choose between model-based real exchange rates vs. exogenous nominal exchange rates. By default, the model uses exogenous nominal exchange rates based on projections from the WEO. It is advised to use model-based exchange rate when the user wishes to calculate exchange rates based on the exchange rate-GDP elasticity.



(5) Review model parameters in Advanced Parameters

In *Advanced Parameters*, the users can adjust the parameters of the production function as well as parameters in the physical capital and human capital accumulation functions. The template provides default values for these parameters, which were chosen based on the literature (Atolia et. al., 2019). The parameters and the functions are described in detail in the tool.

(6) Review outcomes for the baseline scenario

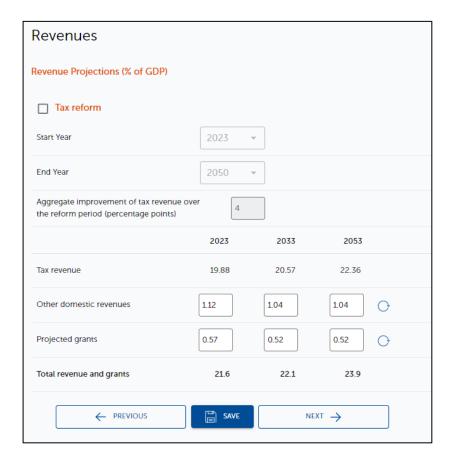
Once the user finishes updating the values, the user can see the updated outcomes on the right side of the page. The user can review the updated macroeconomic table by returning to **Baseline** > **Overview**.

Step 2. Building a policy scenario

Once satisfied with the baseline scenario, users can click on the **Scenario** button at the upper-right corner to start creating a policy scenario.

In this section, users can simulate policy measures and financing options to reach the SDGs. These scenarios may include (but are not limited to) Revenue Mobilization, Structural reforms, Private financing, and downside/scarring (See **Glossary** at the end of the note for more details on each scenario).

The user can build a scenario by updating the related section. For example, the tax reform scenario can be done in *Financing* > *Revenue*. The user can use the option "*Tax Reform*" and specify the starting year of the tax policy reform and the year in which it is supposed to achieve the desired effect in terms of increase in tax revenue – the increase is expressed in terms of percentage points increase.



For ease of use, the links to the relevant panels for common policy scenarios are provided in **Scenario** > **Overview**.

Examples of scenarios: (i)



Revenue mobilization

Users can create a scenario that incorporates a tax reform. For instance, the user can implement a medium-term revenue strategy by selecting Tax Reform in Financing > Revenues and entering the start and end year as well as the target improvement of tax revenue.

Improving public investment efficiency

Users can create a structural reform scenaro, for example, by improving the efficiency of public investment. The adjustment can be done in the spending efficiency parameters fields in Financing > Public Expenditure.

Private financing

The government can also pursue policies to increase private financing in the SDG sectors. To create this scenario, the user can adjust private spending estimates in Financing > Private Financing.

Below are examples of policy scenarios in the case of Rwanda. The results are documented in the background note of the Staff Discussion Note, Post-Pandemic Assessment of the Sustainable Development Goals (Benedek et al., 2021).

Example: Scenarios for Rwanda

Medium-Term Revenue Strategy (MTRS)	Structural Reforms	Private Financing	Downside Scenario
Increase of 7 percentage points of the tax-to-GDP ratio, implemented gradually over the period 2023 to 2029	 1% of GDP reallocation towards SDG spending from 2020 onwards Increase in public spending efficiency by 10 in the period 2020- 30, and then converging to the level of efficiency of peer countries (0.80). 	• Increase in private finance of 2.8% of GDP, implemented gradually over the period 2022-2030, which would bring FDI in Rwanda in line with the 75th percentile of its peers.	• The depreciation of human capital is increased by 50% over the period 2020-25 reflecting lost education years, and the diffusion of skills in the economy is reduced by 10% in the same period.

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Note on Structural reforms: Public investment efficiency

An important functionality of the tool is the possibility to set the efficiency level of public investment. In general, efficiency refers to public investment management practices. In the framework the efficiency parameter is a scaling factor that transforms the amount spent in investment and actual production of physical and human capital that enters the production function. In our framework, spending efficiency parameters take values between 0 and 1. Efficiency set as 1 means that \$1 spent in infrastructure becomes \$1 of capital in the production function; similarly, if efficiency is 0.5, it means that \$1 spent in infrastructure becomes just \$0.5 of additional capital in the production function. The same concept applies for human capital accumulation.

Step 3. Comparing the scenarios

Once satisfied with the policy scenario, users can proceed to **Comparison Dashboard** by clicking the **Comparison Dashboard** button at the upper-right corner.

Comparison Dashboard allows the user to compare the key outcomes and macroeconomic indicators in the baseline and policy scenario. In addition, the dashboard provides charts over a 30-years horizon on human capital, infrastructure capital, and real GDP per capita. The user can export the page by clicking on **Export Data** on the upper-right corner. Similarly, the user can export the individual charts by clicking on the hamburger button next to the chart title.

The Dashboard also contains the macroeconomic indicators table incorporating the data from both baseline (BL) and policy scenario (SC).

Macroeconomic Indicators	2023 BL SC	2033 BL SC	2053 BL SC
GDP Per capita (in USD 2022)	6370 6370	9098 9098	25121 25121
Real GDP growth (in percent)	2.5 2.5	3.4 3.4	3.4 3.4
Current account balance (in percent of GDP)	-8.8 -8.8	-9.0 -9.0	-9.0 -9.0
Government finances (in percent of GDP)	2023 BL SC	2033 BL SC	2053 BL SC
Revenues and grants	21.6 21.7	22.1 24.0	23.9 28.2
Primary expenditure	22.2 22.3	22.5 24.4	25.1 29.4
SDG-related	3.6 3.8	4.0 5.9	6.6 10.9
Other	18.5 18.5	18.5 18.5	18.5 18.5
Interest expenditure	3.0 3.0	2.5 2.5	1.7 1.7
Overall balance	-3.7 -3.7	-2.9 -2.9	-2.9 -2.9
General government debt	69.8 69.8	64.0 64.0	51.6 51.6

IV. Glossary

This section provides definitions for key terminologies used in the tool.

General

SDG: Sustainable Development Goals. The template covers five key SDG sectors, which are health, education, electricity, water/sanitation, and roads.

Financing: Country's financing channels for SDGs. The tool covers revenues, debt financing/deficit, public expenditure (both SDG and non-SDG spending), and private financing.

Costing: Estimated cost of achieving the SDG goals by 2030. The additional annual cost is based on the costing model from Gaspar et al. (2019). Note some estimates are based on country averages and does not replace a detailed country-level costing.

Macro: Macroeconomic indicators such as GDP, external sector, inflation rates, interest rates, and exchange rates. Exogenous or production function approaches are available for some indicators, and the users can adjust parameters for sub-indicators.

Additional financing needs: Annual financing needs required to achieve the SDG goals by the selected year, additional to the current SDG spending.

Bankable infrastructure: Infrastructure projects funded only by the public sector.

Non-bankable infrastructure: Infrastructure projects funded both by the private and public sector.

Policy Scenarios

Baseline scenario: Scenario based on current projections and policies. Projections are based on data and announced policies at the time of the chosen vintage of World Economic Outlook and UN population data.

Tax reform: Scenario in which a comprehensive plan covering tax policy and administration is implemented, such as Medium-Term Revenue Strategy.

Structural reform: Structural reforms include reforms to improve the country's business climate, labor market, and general efficiency related to public finances. An example is reforms of stateowned enterprises (SOE) that improve the efficiency of the public administration and free resources for SDGs spending.

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Private financing: Scenario that directs more private financing towards achieving SDG goals. Private financing can play a role in achieving the SDGs through two main channels: by indirectly contributing to GDP growth and increasing tax revenue, and by directly financing SDG-related sectors.

Downside scenario: Scenario which reflects the prolonged effects of the COVID-19 pandemic on the economy and human capital.

V. Data Sources

Data are updated biannually from the following databases:

Indicators	Database	Frequency	Accessibility
Macroeconomic indicators	World Economic Outlook	Biannual	Public
Population	UN World Population Prospective	Every two year	Public
Infrastructure stocks	FAD Investment and Capital Stock Database	Every two year	IMF internal only
SDG costing data	IMF Expenditure Policy costing estimates	N/A	IMF internal only

V. References and Resources

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