

World Bank Smart Portfolio Analytics (WB-SPA) Governance Operations Analytics Tool (GOAT)

Portfolio Scan (Public Investment Management) using GoAT Capabilities

This Update: April 9, 2024

The World Bank is keen on harnessing the potential of big data and advanced analytics in its operations. Traditional methods for analysing the extent of 'Asset Management support in the World Bank's portfolio relied on theme, sector, and practice coding. These methods are not versatile enough to discern how Asset Management was embedded in projects and are impractical due to time and resource limitations.

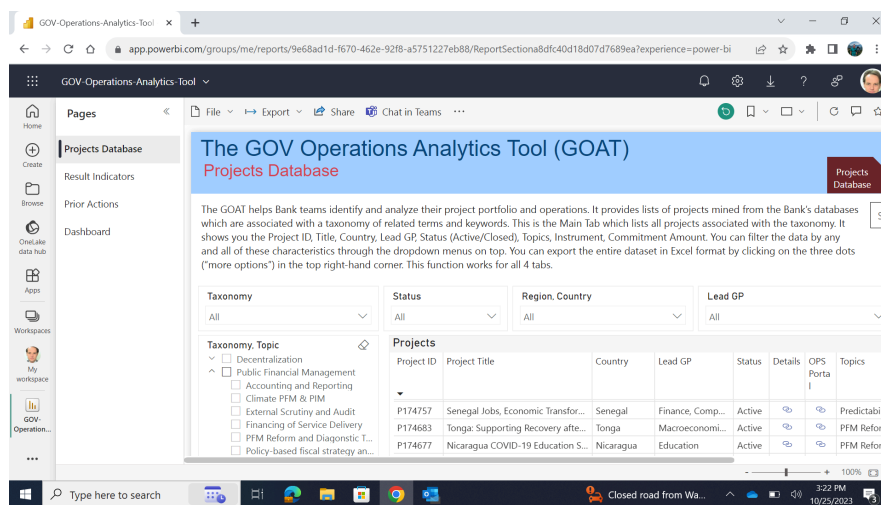
The team adopted a novel approach to overcome these challenges by leveraging text-mining methods on the bank's project documents (see Box 1). They employed Python-based text mining scripts on the Microsoft Azure Databricks (MAD) platform. This platform facilitated the merging various databases and web services relevant to portfolio analytics. The new system offered dynamic and online capabilities, ensuring a systematic and efficient review of the extensive volume of data.

Acknowledgements

This note was prepared by Parvathy Krishnan (Consultant/Senior Data Scientist) and Kai-Alexander Kaiser (Senior Governance and Public Sector Specialist, EECG1), with ongoing inputs and guidance by Timothy Stephen Williamson (Senior Governance and Public Sector Specialist, EGVPF). Support in preparing the GoAT WebApp was provided by Pechiyappan Muthukumar (Knowledge Management Analyst, EFIOS) and Ramin N. Aliyev (Senior Knowledge Management Officer, EFIOS). We would especially like to thank Kartheek Kandikuppa (IT Officer, Business Solutions II, ITSDT, and Pankaj Mendiratta (Senior IT Officer, Business Solutions I, ITSDT) for support in accessing updated data assets in the World Bank.

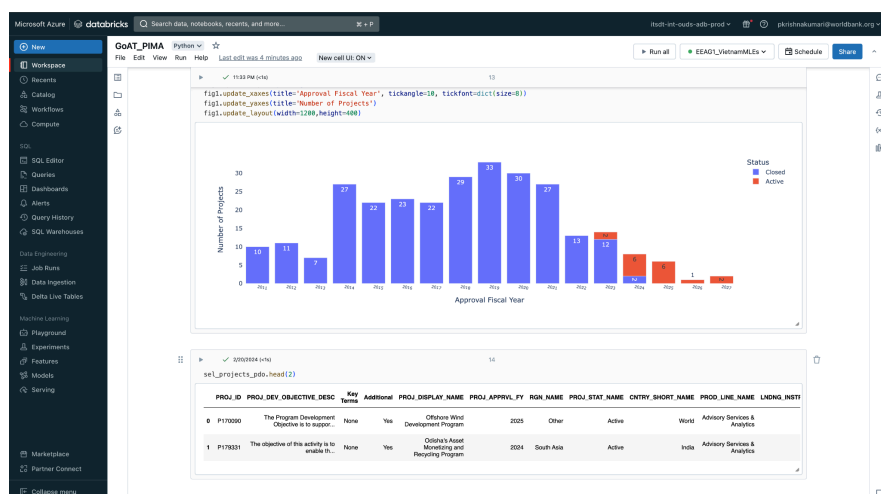
Box 2. Smart Portfolio Analytics

The World Bank, as an organization, puts great emphasis on systematic and progressive project documentation. Every year, it approves the order of five hundred financing operations. This produces extensive structured information (e.g., the dollar value of an operation), as well as partially and/or unstructured data (e.g., short text of Project Development Objectives (PDO)). To allow domain specialists to provide a more systematic exploration of critical topics of interest, the Governance Practice has established two main User Interface/Experience (UI-UX): (i) a WebApp and



Source: <https://app.powerbi.com/groups/me/reports/9e68ad1d-f670-462e-92f8-a5751227eb88/>

(ii) a programming interface in Microsoft Azure Databricks (MAD), a cloud-based environment provided by the World Bank.



These combine PFM/governance domain specialists with data scientists to generate insights.

Portfolio Scan

AAA Product Line

We screened **Active** and **Closed** projects with approval years (fiscal) between 2010 and 2024 (including). AAA product line type includes the following product lines:

- Advisory Services & Analytics
- External Training
- Technical Assistance (Non-lending)
- Economic and Sector Work
- Impact Evaluation
- Research Services
- Research Activity
- World Development Report
- Donor & Aid Coordination

This resulted in 21,411 projects, including 20,008 Active and 1403 Closed Projects (Fig 1).

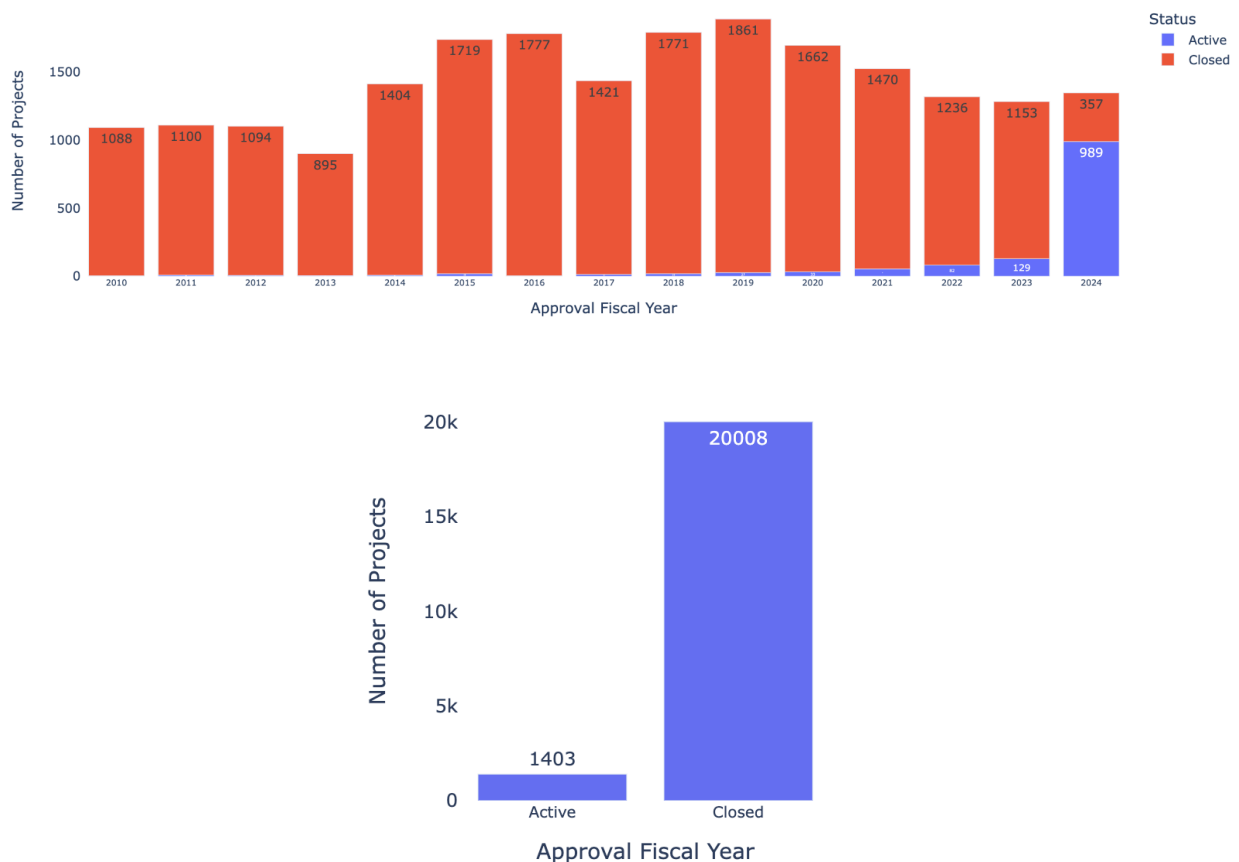


Figure 1. Universe of Project Scanned (AAA Product Line)

The team employed a hierarchy of search terms to refine the understanding of asset management. 'Key Terms' included phrases like 'asset management', 'infrastructure governance', and 'asset register'. Meanwhile, 'Additional' terms encapsulated phrases such as 'asset governance', 'public asset management', and 'asset valuation'. This comprehensive search strategy ensured that all relevant operations, even those with oblique references to asset management, were captured.

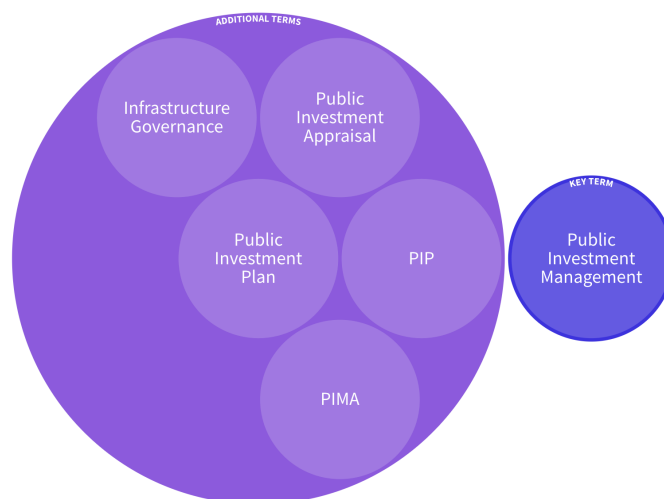


Figure 2. Hierarchy and Search Terms used

The search for the Project Development Objective Description for these projects resulted in 279 projects, and [these keywords appear](#) with 72 projects from Governance Global Practice (Figure 4).

Table +						New result table: OFF	
	PROJ_ID	PROJ_DEV_OBJECTIVE_DESC	Key Terms	Additional	PROJ_DISPLAY_N		
1	P169815	The joint CEM/PER for the RMI has two development objectives. The first objective is to improve understanding of: (i) the The objective of the Solomon Islands PER is to support the SIG in maintaining fiscal sustainability through identifying new sources of revenue, enhancing public spending efficiency and improve public investment management. World Bank PERs generally evaluate multiple dimensions of public spending	Yes	None	RMI and Vanuatu C		
2	P177544	The objective of the Solomon Islands PER is to support the SIG in maintaining fiscal sustainability through identifying new sources of revenue, enhancing public spending efficiency and improve public investment management. World Bank PERs generally evaluate multiple dimensions of public spending including the effectiveness, equity and efficiency of public spending as well as fiscal sustainability. The Solomon Islands PER will examine how to sustain fiscal sustainability (in a post-COVID context...	Yes	None	Solomon Islands Pi		
3	P143811	The objective of the NTLA Public Sector Capacity Building Project is to achieve national consensus around the identification of practical and technical solutions to improve public investment management capacity in Benin. The proposed solutions will aim to improve the performance of the public administration in efficiently, transparently and effectively managing public investments. The process will contribute to focusing will contribute to addressing specific public sector capacity bottlenecks d...	Yes	None	Public Sector Capa		
	P155648	The overall vision is to support government in collecting more and spending better for improving the quality of service delivery. The revised development objectives of the program are: (1) to increase GOI's capacity to design and implement	Yes	None	Strengthening Rev		

279 rows | 0.71 seconds runtime Refreshed now

Figure 3. PDO Search Results

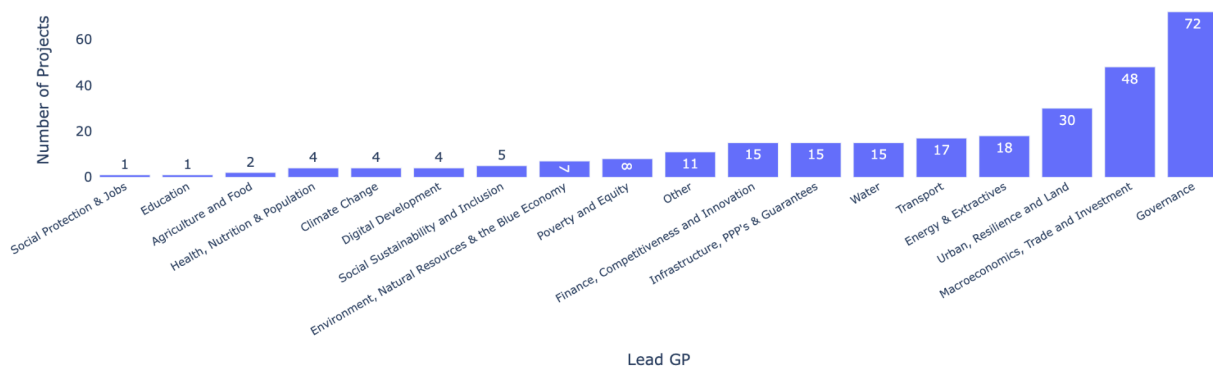


Figure 4. PDO Search Results

This analysis, when extended to Lending Project Universe (Investment Project Financing, Development Policy Lending, and Program-for-Results Financing) of **6094** Active and Closed Projects approved between 2010 and 2024, returned **28** projects

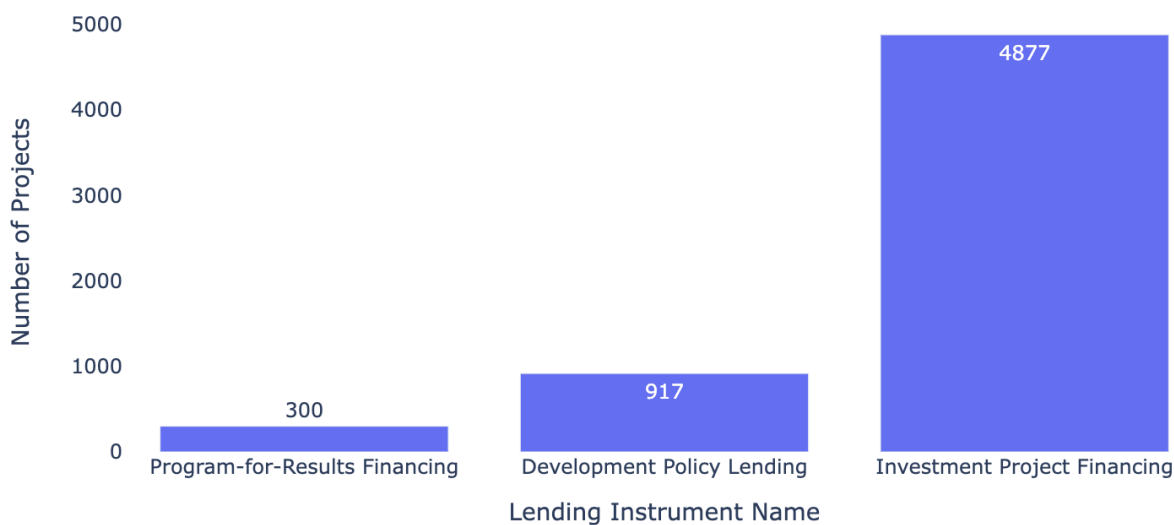


Figure 5. Universe of Project Scanned (Lending Projects)

PROJ_ID	PROJ_DISPLAY_NAME	PROJ_DEV_OBJECTIVE_DESC	Key Terms	PROJ_APPF	RGN_NAME	PROJ_STAT	CNTRY_SHC	PROD_LINE	PROD_LINE	LNDNG_INS
P156410	Governance and Policy Program for Khyber Pakhtunkhwa (KP)	To strengthen the capacity for Sales Tax on Services collection and improve public investment management and accountability for public service delivery in Khyber Pakhtunkhwa.	Yes	2017	South Asia	Closed	Pakistan	Recipient Execu	LENDING PROC IN	
P171659	Governance and Policy Project for Khyber Pakhtunkhwa	To strengthen the capacity for Sales Tax on Services collection and improve public investment management and accountability for public service delivery in Khyber Pakhtunkhwa.	Yes	2020	South Asia	Closed	Pakistan	Recipient Execu	LENDING PROC IN	
P131212	Ninth Poverty Reduction Support Credit (PRSC 9)	To assist the Government of Mozambique to: (i) to improve the business climate and to increase transparency in extractive industries; (ii) strengthen social protection; and (iii) strengthen public financial management by enhancing effectiveness of internal audit, developing a public investment management process, and improve public debt management	Yes	2014	Eastern And So	Closed	Mozambique	IBRD/IDA	LENDING PROC AD	
P161176	Vietnam: Strengthening M&E Capacity for Improved Performance of Public Investment Projects	The objective of the proposed grant is to strengthen the functional capacity of the Ministry of Planning and Investment in the formulation and implementation of result-based monitoring and evaluation based on pilot work in selected provinces. The TA is focused on but not limited to urban development projects. The project is expected to contribute to substantive improvements in the monitoring and evaluation system of the public investment projects in Vietnam with following specific targets: (i) formulation of a set of result-based M&E indicators which will be adopted in project appraisal; (ii) enhancing the M&E database system with the new set of indicators; and (iii) strengthening M&E capacity of MPI and selected DPLs in result-based M&E for improvement of efficiency of public investment projects. The adoption of the new set of M&E indicators will be piloted for the appraisal and M&E of selected urban development projects, with the support of the amended system of information for public investment management of the MPI.	Yes	2023	East Asia And P	Active	Viet Nam	Recipient Execu	LENDING PROC IN	
P153243	AO-Fiscal Management Programmatic DPL	Project Development Objective (Note: will be disclosed in the MOS) This series of two operations will help fill the projected fiscal gap of about 5 % of GDP over the medium term, and support policy reforms in the areas of non-oil tax policy and administration, public investment management, and subsidies reform (including the establishment of a targeting mechanism to protect the poor and vulnerable). FY15 for first operation, FY16 for second operation. Board Schedule Comments	Yes	2015	Eastern And So	Closed	Angola	IBRD/IDA	LENDING PROC AD	
P155323	Angola Fiscal Management Development Policy Financing	Project Development Objective (Note: will be disclosed in the MOS) This series of two operations will help fill the projected fiscal gap of about 5 % of GDP over the medium term, and support policy reforms in the areas of non-oil tax policy and administration, public investment management, and subsidies reform (including the establishment of a targeting mechanism to protect the poor and vulnerable). FY15 for first operation, FY16 for second operation. Board Schedule Comments	Yes	2015	Eastern And So	Closed	Angola	Guarantees	LENDING PROC AD	
P180722	Public Finance Management and Procurement Systems for Service Delivery Program	To strengthen accountability, transparency and institutional capacity in public resource management, through improving public financial management, including domestic revenue management and external revenue mobilization, public procurement and public investment management systems and processes in select entities, to enable improved public service delivery.	Yes	2024	Eastern And So	Active	Tanzania	IBRD/IDA	LENDING PROC PR	