

Project Plan

Data Analytics – IT Audit Techniques

INTOSAI

Working Group on IT Audit (WGITA)

Version 1.6

2017

Document control sheet

Contact for enquiries and proposed changes

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Revision History

Revision Date	Version	Author	Description of Change/Revision
February 2017	1.0	Yusminarni SZ	First draft
March 2017	1.1	Yusuf Ahmadi	Wbs
March 2017	1.2	Risa P. Mulya	Revised milestone list, schedule baseline and wbs
March 2017	1.3	Novis Pramantyabudi	Addition: Table of Content, Objectives, Deliverables, Risks Revision: introduction, project scope, project management approach, milestones list, communication and management plan,
April 2017	1.4	Rudy H	Added Theoretical Framework, Revised project deliverables and Scope, Revised assumption and risk
April 2017	1.5	Ria Anugriani	Reviewed
May 2017	1.6	Ria Anugriani	Revised project deliverable - Final

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INTRODUCTION

Rapid growth in volume and variety of data processed during audit engagement in public entities demand SAIs to perform audits with an innovative forms of information processing to enable SAIs to benefit from these high-volume, high-velocity and/or high-variety information assets. Because all organizations are impacted by IT in various forms, it is nearly impossible to conduct an effective audit without using technology. The rising usage of IT also means ever increasing of volumes, velocity, and variety of data sources. Current audit standards already require consideration of the use of data analytics for good reason.

Data analytics (DA) is the process of examining data sets in order to draw conclusions about the information they contain, increasingly with the aid of specialized systems and software¹. Data analytics is a relatively new emerging area for auditors. It can be applied to a wide range of assurance engagements, not just audit. For auditors, the use of data analytics allows them to improve risk assessment process, substantive procedures, and tests of controls. Furthermore, data analytics technique also enable auditors to view high level organizational operations in a big picture and then drill them down into the data. It can be used throughout all phases of an audit, from planning to evaluation. It can also be used to identify errors, which may lead to the discovery of fraudulent activity. Technology can be used to improve the audit quality and reduce the time necessary to complete the engagement.

Auditors used the data analytics with a view to improving audit quality. However, audit quality does not merely lie in the tools they used – although it clearly cannot be achieved without tools that are fit for purpose – rather it lies in the quality of auditor’s analyses and judgements facilitated by using such tools. The value of data analytics is not the capability of the tools to transform the data, but depends on the audit evidence extracted and enquiries that the data analytics produces. It can enhance a risk assessment process, substantive procedures, and test of controls.

This project will discuss issues surrounding the data analytics challenges, techniques, and tools using open source or freely and/or widely available tools. This technique is becoming more importance since data analytics enables the auditors to evaluate 100% of total transaction and visualize the results graphically, easily and at a remarkable speed. For auditing organization, the ultimate objective of using data analytics technique is about enhancing audit quality.

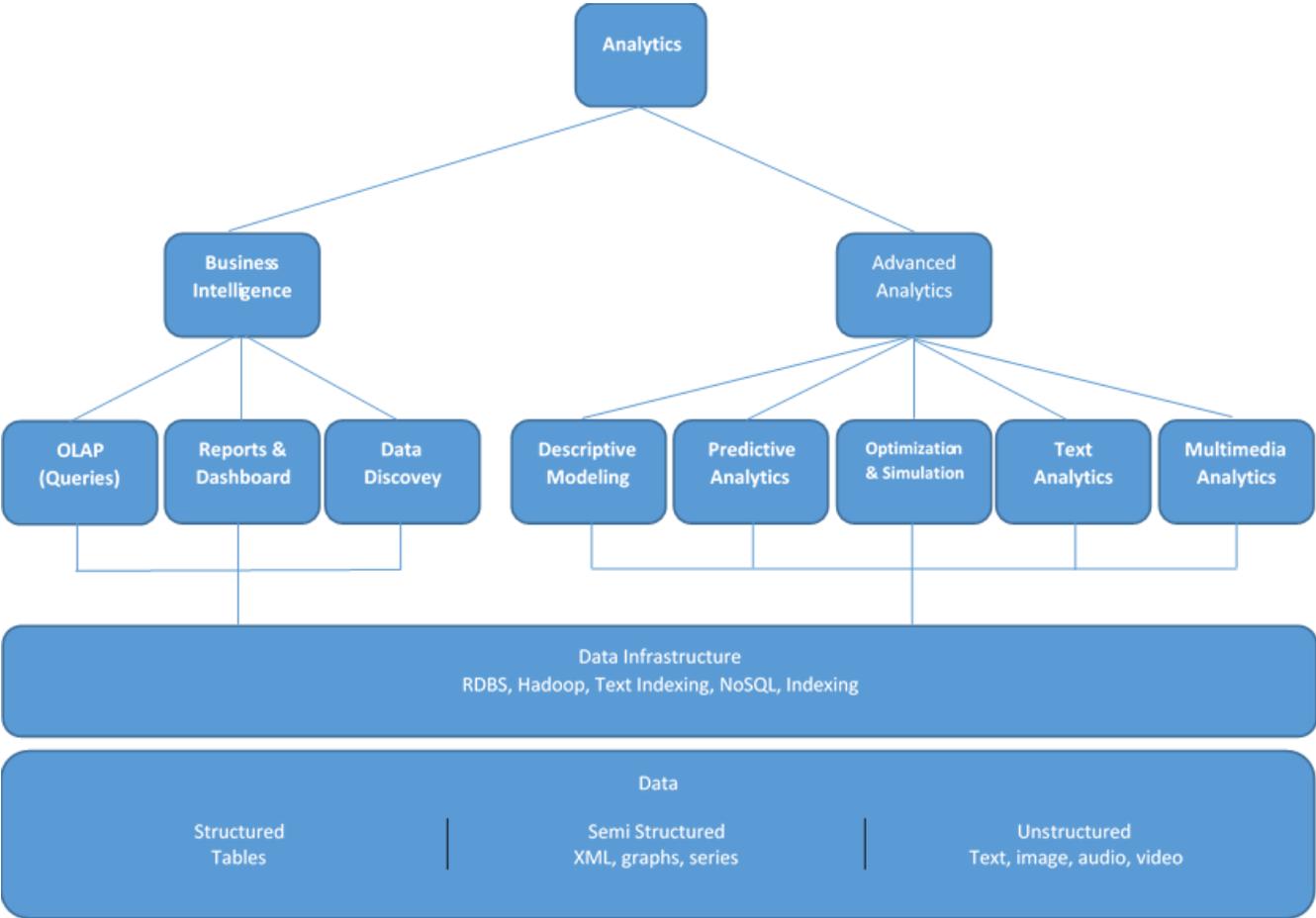
¹ <http://searchdatamanagement.techtarget.com/definition/data-analytics>

OBJECTIVES

The overall objective of this project is to facilitate sharing among SAIs regarding the Data Analytics techniques and tools used within the respected SAIs in terms of supporting their audit assignment activities. This sharing of knowledge will be used to develop the guidance as one of the best practice that can be used by other SAIs not participating in this project.

THEORETICAL FRAMEWORK

Analytics is an immense field with many subfields² that can be shows in the next diagram:



Analytics refers to the skills, technologies, applications and practices for continuous iterative exploration and investigation of data to gain insight and drive business planning. Analytics consists of two major areas: Business Intelligence and Advanced Analytics.

² <https://rapidminer.com/resource/introduction-advanced-analytics/>

Business Intelligence traditionally focuses on using a consistent set of metrics to measure past performance and guide business planning. Business Intelligence consists of querying, reporting, OLAP (online analytical processing), and can answer questions including “what happened”, “how many”, and “how often”. Business Intelligence uses the data of the past, lets the user find out if what he already believes is true, and requires the user to manually define actions.

Advanced Analytics goes beyond Business Intelligence by using sophisticated modeling techniques to predict future events or discover patterns which cannot be detected otherwise. Advanced Analytics can answer question including “why it’s happening”, “what if these trends continue”, “what will happen next” (prediction), “what is the best that can happen” (optimization). Advanced Analytics uses the data of the past, automatically finds hidden patterns too complex for humans to finds, and allows the automatic identification and performances of the optional actions.

PROJECT DELIVERABLES

The main deliverable of this project is a set of Guidance on Data Analytics that covers business intelligence and advanced analytics. The set of deliverables are:

1. Business Intelligence Guide
2. Advanced Analytics Guide

This guidance will also contain some examples and case studies on how this data analytics technique is used in some of member SAIs, and also some data analytics tools used by SAIs that readily available on the market.

PROJECT SCOPE

As stated earlier, the purposes of this project are to develop guidance on Data Analytics that covers business intelligence and advanced analytics. This project will also cover how to utilize designated tools that are agreed to be used for data analytics in an audit engagement. Proprietary data analytics tools that are not spreadsheet basis, considered not widely available, or needs specialized expertise will not be included in this project.

The Data Analytics focuses only data that are produced by SAI’s audited entities. The main purpose of the project is to gain benefits from analyzing information assets during the audit processes. In order to maximize the benefits at early stage of the project, focusing only on primary data used and/or produced

by the audited entities in their business is the best option. Data Analytics on secondary/supportive information may be included in the next stage of the project.

The data analytics is purposed to enhance audit process by expanding audit scope and variety of control testing. The project will be designed to cover specific data topics which are relevant to certain type of audit. SAI's primary task is conducting financial audit, therefore, the project will cover mostly on financial data and other relevant supportive data. Besides financial audit, some SAIs also carry out compliance audit and performance audit. The project will also cover any type of data that relevant to these types of audit whenever required.

SAIs manage auditors with various background knowledge. The data analytics tools need to be selected according to the need and users' ability. The data analytics will be delivered as a standalone solution, therefore, the solution is widely usable with simple development. Additionally, the solution will be designed so that will not require 'highly specialized skill' to operate.

There are certain criteria of data analytics that will be shared to enhance audit quality. Some selection criteria for the tools would be:

- Data visualization capability, i.e. ability to graphically visualize results;
- Sophistication, and the breadth of interrogation options;
- User friendliness: ease of use by non-specialists; and
- Scale and speed.

PROJECT MANAGEMENT APPROACH

This Data Analytics project will adopt Systems Development Life Cycle (SDLC) approach with phases including Planning, Analysis, Design, Development, Testing, and Review. Project tasks will be carried out by team assigned from the working group where SAI Indonesia is responsible as project leader. Research, consultation with Subject Matter Expert (SME), Focus Group Discussions (FGD) will be arranged whenever necessary. To ensure the Data Analytics project yields in an applicable solution, pilot projects will be performed and reviewed for solutions improvement.

MILESTONE LIST

The milestones for this project are as follows:

1. Project Initiation Document approved (November 2016)
2. Project Plan approved (Q1 – 2017)
3. Business Intelligence Guide completed (Q4 – 2018)
4. Advanced Analytics Guide completed (Q3 – 2019)
5. Closing (Q4 – 2019)

SCHEDULE BASELINE AND WORK BREAKDOWN STRUCTURE

Data analytics guide schedule baseline

Processes	2016				2017				2018				2019			
	S	O	N	D	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
1 Initiation																
1 Drafting																
Approval by WGITA																
2 Chair																
3 INCOSAI																
2 Planning																
3 Execution																
1 Business Intelligence																
1 Development																
2 Testing and QA																
3 Piloting																
4 Finalizing																
2 Advanced Analytics																
1 Development																
2 Testing and QA																
3 Piloting																
4 Finalizing																
4 Monitoring																
5 Closing																

Work Breakdown Structure

1. Planning
 - 1.1. Complete data topics
 - 1.2. Complete identification of data sources
 - 1.3. Complete problems statement
 - 1.4. Complete identification of applicable algorithms
 - 1.5. Determine Data Analytics solution platform and tools
 - 1.6. Complete guiding criteria
 - 1.7. Complete critical success factors
2. Business Intelligence
 - 2.1. Development
 - 2.1.1. Complete data acquisition guide
 - 2.1.2. Complete data pre-processing guide
 - 2.1.3. Complete analysis guide
 - 2.1.4. Complete interpretation guide
 - 2.1.5. Complete business intelligence guide
 - 2.2. Testing and QA
 - 2.2.1. Determine data tests for business intelligence
 - 2.2.2. Acquire data test
 - 2.2.3. Perform walkthrough of business intelligence guide
 - 2.2.4. Complete test result report
 - 2.3. Piloting
 - 2.3.1. Determine pilot subject (location and data topic)
 - 2.3.2. Determine team for pilot projects
 - 2.3.3. Assign reviewer for pilot projects
 - 2.3.4. Complete lessons learned from pilot
 - 2.3.5. Complete pilot report
 - 2.4. Finalizing
3. Advanced Analytics
 - 3.1. Development
 - 3.1.1. Complete data acquisition guide
 - 3.1.2. Complete data pre-processing guide
 - 3.1.3. Complete analysis guide
 - 3.1.4. Complete interpretation guide
 - 3.1.5. Complete advanced analytics guide
 - 3.2. Testing and QA
 - 3.2.1. Determine data tests for advanced analytics
 - 3.2.2. Acquire data test
 - 3.2.3. Perform walkthrough of Advanced Analytics Guide
 - 3.2.4. Complete test result report
 - 3.3. Piloting
 - 3.3.1. Determine pilot subject (location and data topic)
 - 3.3.2. Determine team for pilot projects
 - 3.3.3. Assign reviewer for pilot projects
 - 3.3.4. Complete lessons learned from pilot

- 3.3.5. Complete pilot report
- 3.4. Finalizing

CHANGE MANAGEMENT PLAN

The project is designed to accept certain request for changes, revisions, and delivered with versioning. The request for change will be administer by an agreed procedure and will be compared to a certain baseline. In general, the standard change request procedure as follows:

- a. Change request is submitted by filling a form provided by project managers
- b. The change request is verified, if the required baseline is complied, then the request is approved, otherwise will not be approved
- c. The project manager then assign the request to be conducted accordingly by responsible SAI members of the project.

Revision of the deliverables is also accommodated by the project, every revision made will be recorded in a separated document, and also briefly stated in the deliverables document in the Change Log section. The versioning of the document will be implemented accordingly.

COMMUNICATIONS MANAGEMENT PLAN

Effective communication among SAIs which are responsible in this project will be led by Indonesia. Instead of providing a Shared Point based portal, SAI Indonesia will coordinate with WGITA secretariat to provide an existing INTOSAI's web portal to be used for discussion and collaboration between team members. Video conferences can also be arranged as needed if necessary. Standard means of communication such as email, fax, mailing list, and other possible communication type, will be used as a contingency plan of communication if the portal and/or video conference failed and the communication is urgently needed.

The portal will be equipped with document sharing, discussion board, message board, online word processing application, online spreadsheet application, project management page, and if needed, mail service. Additional features will be arranged based on request or if needed, subject to availability.

STAFFING MANAGEMENT PLAN

The project will be conducted by thirteen SAIs, led by SAI Indonesia. Member SAIs are: Bangladesh, Brazil, Ecuador, Georgia, India, Iran, Iraq, Japan, Malaysia, Pakistan, South Africa, and USA. Every task in

the Work Breakdown Structure will be assigned to SAI member of the project. The project leader will be responsible for managing all the project tasks, and each member will be responsible for each task assigned.

The general responsibilities of the member of the project are:

- a. Completing tasks accordingly and timely manner
- b. Reporting regularly by an agreed schedule
- c. Communicating to all members if any issues are raised
- d. Delivering result on time and complete.

ASSUMPTIONS AND RISKS

Each group member is assumed to have already implemented data analytic tool or have a broader access to information on which government organization already implemented such tools. This is important to facilitate better sharing of information between SAI members.

Should there are changes to individual project member, the respected SAI shall notify the leader about the changes to ensure the continuous understanding between members.

Once the development activity takes place, there will be a periodically updated risk assessment to determine whether other risks have surfaced that need to be managed.