

Modernization in Compiling Malaysia's International Investment Position (IIP) through Integrated System

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Abstract:

In the era of new technologies and modern ways of capturing data, the approaches to modernize the statistical business process has become a challenge and one of the most concerned matter for National Statistical Offices (NSO). In this regard, Department of Statistics Malaysia (DOSM) has embarked on the journey of implementing the best practices in obtaining data for compiling the International Investment Position (IIP) statistics. Prior to 2008, DOSM applied the conventional method by using hard copies of questionnaires to collect the IIP data from the respondents. At the same time, Central Bank of Malaysia (BNM) also conducted similar survey to compile External Debt Statistics. Clearly to notice that both agencies carried out the same exercise to collect and compile data on same subject which eventually led to inefficiency and ineffectiveness in usage of resources. Subsequently, both agencies decided to collaborate the survey which is known as IIP Joint Survey that will be implemented through a modernized and advanced system namely International Transactions and External Position System (ITEPS). Thereafter, the system was further strengthened and upgraded to External Sector Statistics System (ESS) to cater the needs of the latest recommended standards by Balance of Payments and International Investment Position Manual, Sixth Edition (BPM6). Also, this system was improvised in terms of data collection and getting a higher response rate by allowing data submission through the portal. Eventually, this led to almost 100% response rate, reduced the timeliness in disseminating the report and optimised the human resources involved in compiling IIP statistics. Hence, this paper aims to depict information about the transition from conventional method to a modernized digital survey that has been conducted by DOSM and to present the modern characteristics of ESS System that can be a benchmark for other NSOs.

Keywords: External Sector, International Investment Position, System

1. Introduction:

Quarterly IIP Joint Survey

IIP statistics in Malaysia is compiled by DOSM together with BNM through the agreed IIP Joint Survey whereby formal institutional arrangement and the Memorandum of Understanding (MoU) were signed between the two agencies. Each agency carries out its respective roles and responsibilities, guided by the MoU and the legal frameworks, namely Statistics Act 1965, Revised 1989 and the Central Bank of Malaysia Act, 2009 (CBA 2009). These legal provisions provide clear guidance for the compilation and dissemination of IIP statistics through the quarterly IIP Joint Survey. Collaborative efforts of these two agencies were in compilation, quality assessment and dissemination in accordance with SDDS. DOSM is the official compiler of the Balance of Payments (BOP), IIP, and Coordinated Direct Investment Statistics (CDIS), while the Central Bank is the official compiler of the External Debt Statistics (EDS), Coordinated Portfolio Investment Statistics (CPIS) and International Banking Statistics (IBS).

In conducting the Quarterly IIP Joint Survey, data items as recommended by BPM6 were applied as the must-reported field by the reporting entities. This survey compiles data on position, transactions & non-transactional data of the financial assets and liabilities. Meanwhile, the granularity of the survey is based

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on individual counterparties and ISIN, country, and currency and maturity structure. The reporting requirements for the submission is through online. More than 3,800 entities include end-investors, custodian and fund managers are submitting to this survey. The deadline of submission is 15 days after end of reporting period. From this comprehensive survey, an output can produce for publication of BOP quarterly, IIP quarterly, Foreign Direct Investment (FDI) and Direct Investment Abroad (DIA).

System Development Background

In the era of new technologies and modern ways of capturing data, the approaches to modernize the statistical business process has become a challenge and one of the most concerned matter for National Statistical Offices (NSO). In this regard, DOSM and BNM has embarked on the journey of implementing the best practices in obtaining data for compiling the IIP statistics since 2008.

Prior to IIP Joint Survey 2008, DOSM and BNM were conducting their own different survey respectively to collect the financial statistics of Malaysia namely Quarterly Survey of International Investment and Services (DOSM) and Quarterly Report on External Assets Liabilities (BNM). This conventional and inefficient approach eventually led the agencies to implement a Joint Survey and modernized system namely International Transactions and External Position System (ITEPS).

ITEPS was established by BNM and DOSM in 2008 for the purpose of compiling the IIP data. The system was managed by BNM and the IIP data will be transferred to DOSM server via BNM Private Network. This ITEPS allows DOSM to access the reported data in detail and generate the standard report of IIP, Financial Account and Investment Income Account.

Nonetheless, there were several drawbacks of ITEPS system. Huge amount of data reported in the system causing a delay in transferring the IIP data to DOSM's server. At the same time, DOSM could not access the detailed information of the reporting entities in the system. This system also has limitation where DOSM does not have access for the system especially when required further clarification on the issues regarding the submitted data by the particular reporting entities. Hence, there is a need to develop a more modernized and integrated system in line with the increasing demand of the international financial statistics and to cater the requirement of DOSM in compiling this statistic.

In 2017, by investing minimal amount of money, the system was enhanced to External Sector Statistics System (ESS) by taking into consideration of several drawbacks of ITEPS system for data compilation. The system was improvised and more convenient especially for companies to submit their reports. More variables are covered in the system on granular basis. Better interface and user-friendly system had been introduced for the convenience of the company. In fact, response rate of submission report can be reached to 100% due to this system accessible via online at anywhere. Besides that, this system allows to generate daily report in order monitoring submission from company. This also can reduce the delay in transferring the quarterly IIP data. It is also cost effective as everything is via online; fewer human resource and less paper works are needed. Therefore, with this system, the compiling process of IIP statistics is now shortened to 6 weeks as compared to 8 weeks previously which is much more efficient and effective in terms of timeliness.

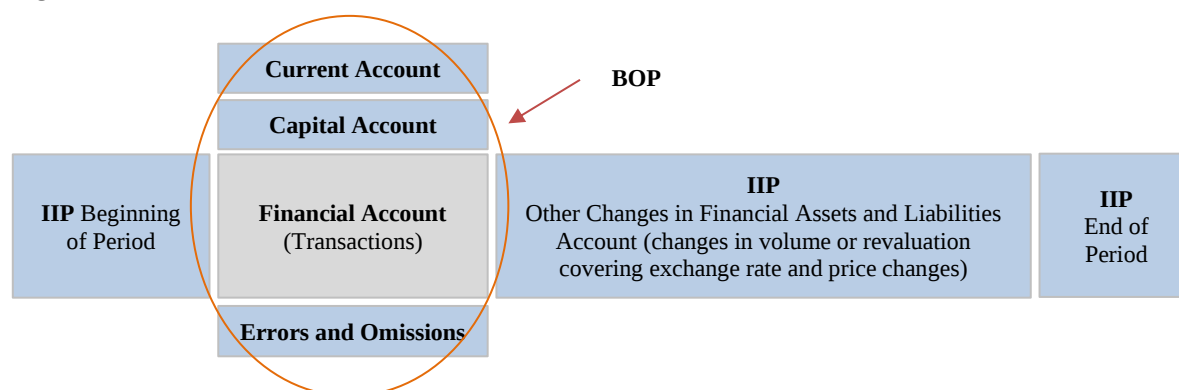
2. Methodology:

The ESS system was developed based on the ideas, concepts and recommendations of IMF. To implement BPM6, IMF has strongly recommended on an integrated approach to be adopted by compilers to facilitate the production of the BOP and its other related statistics, including IIP, EDS, CPIS, CDIS and IBS. The compilation approach via the integrated IIP framework can fully explain the changes in stock position resulting from financial account transactions, revaluations (separately identifying price and exchange rate changes) and other changes in volume of assets and liabilities, as

well as consistent statistics for the Financial Account (FA) of BOP, IIP, EDS and IBS. Data are intrinsic value in themselves, and to support the assessment of the various measures included in the integrated IIP that facilitate the analysis on factors affecting the movement of the investment position of the country.

The illustration for the Integrated IIP frameworks is as follows:

Integrated IIP Framework



The quarterly IIP Joint Survey collects granular data on item-by-item reporting, whereby the items reflect the financial instruments and are reported in the dimensions of the country of the counterparty, currency of transactions and maturity structure for selected financial flows.

The data items that are identified by unique purpose of transactions, namely equity capital, retained earnings, equity securities, debt securities, loans, deposits and others. These items are reported with further details based on each individual counter party. Additional details, such as name, relationship, percentage holdings of investors and affiliated companies are collected to facilitate more in-depth analysis, particularly in the areas of foreign direct investments in Malaysia as well as Malaysia's direct investment abroad.

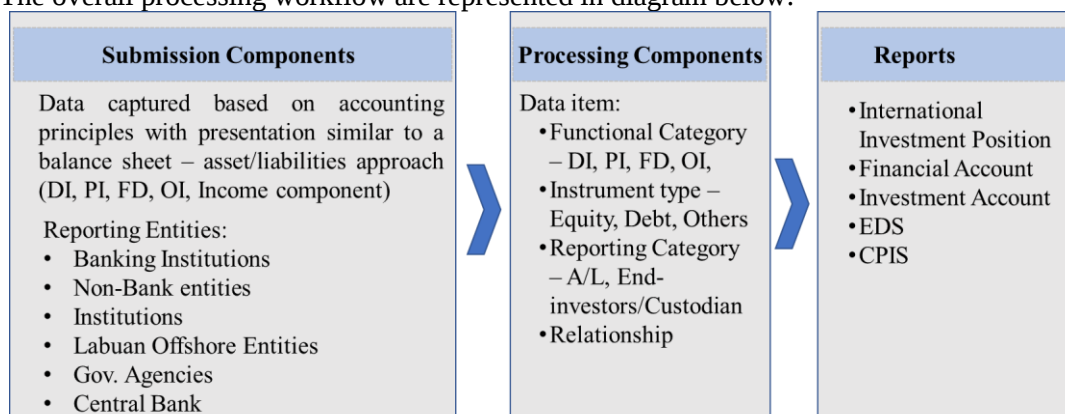
3. System Architecture and Process:

DOSM as a National Statistical Office (NSO) has always implemented the best practices in obtaining the data for the compilation of statistics. This practices also show a modernization of technologies in collecting and disseminating the data through the External Sector Statistics (ESS) System and ITEPS-DOSM that integrate all the requirements where it shows the complete process from the data submission of respondent until the generating report for IIP.

i. Submission by respondent through ESS

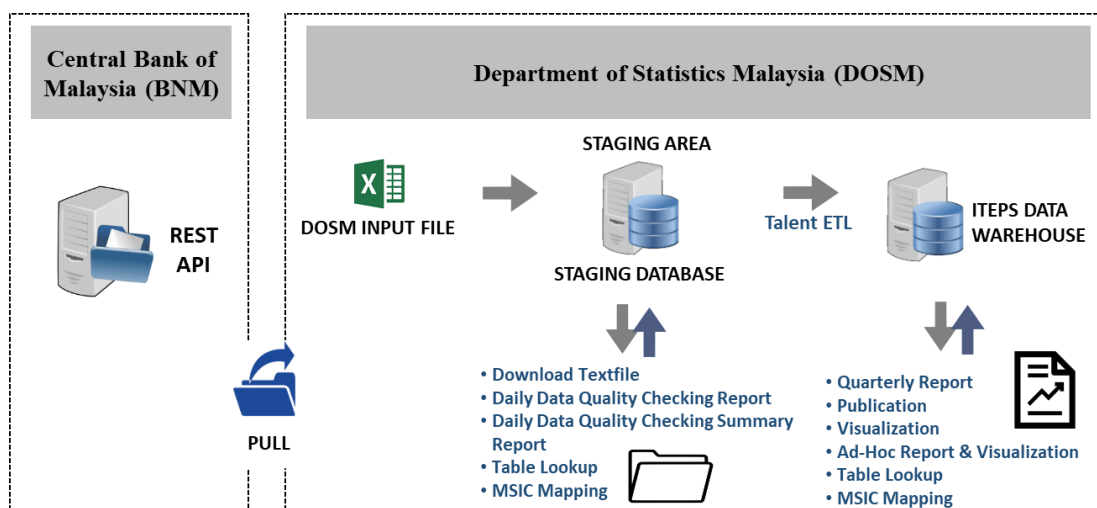
In this front-end module namely **ESS System (based at BNM)**, the respondents are required to report their external financial assets and liabilities exposures vis-à-vis their non-resident counterparties following an accounting approach. The reporting is done similarly to a financial statement with further categorisation by Direct Investment (DI), Portfolio Investment (PI), Financial Derivatives (FD) and Other Investment (OI). Respondents will be given a unique ID and password in order to report their financial asset and liabilities 15 days after end of reporting period. In addition to the compilation notes and manual, the front-end modules are also equipped with build-in business validation rules to alert and/or prevent on possible misreporting by both the respondents and compilers.

The overall processing workflow are represented in diagram below:



ii. Data transmission

The report generated from ESS, will be stored at staging database of DOSM. The data later will be processed and transferred to the warehouse via ETL Process (Extract, Transform, Load). This process will allow the data to be used for generating report, publication and visualisation and it is carried out in daily and weekly basis for quarterly data according to the time frame. Meanwhile, report regarding to the status of transferring data file will also be prepared. There are 47 variables in this database including data report by respondents and lookup table from DOSM for the purpose of mapping. Three (3) types of data transmission have been implemented which are daily data, quarterly data and lookup table.



iii. Data process

Data will be processed at staging database whereby the assigned officers will do data quality checking throughout the datasets. The system will identify the data with issues through business rules setting. The data file in staging database will be moved to Archive folder and transferred to data warehouse through the ETL process.

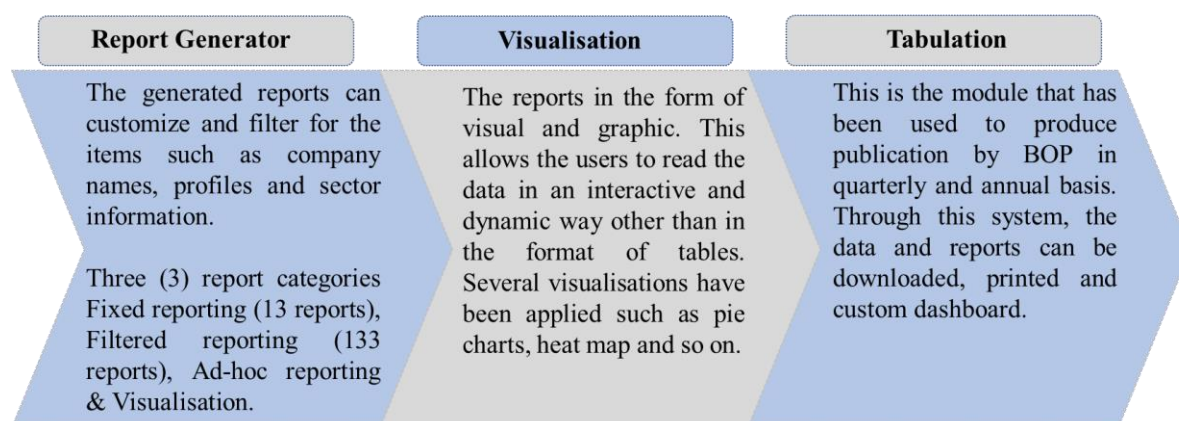
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iv. IIP Report generating

After done with the process of ETL, the database will be available in ITEPS-DOSM data warehouse where the regular and daily IIP reports will be generated automatically. This ITEPS-DOSM system is managed by Admin and assigned officers who have the ID and Password to access. In this process, three (3) main modules are involved for reporting purpose which are Report Generator, Visualisation and Tabulation.



Example of report generated by ITEPS-DOSM system:

Year	Qtr of Year	Data Source	EAL Profile ID	Data Item Code IIP Detail BPM5	Data Item Code IIP Detail BPM6	Company or Bank BRIC MICR	Company or Bank Name	Controlling Status or Residency Status	Company or Bank MSIC Group	Company or Bank MSIC	Assets or Liabilities Indicator	Purpose Code IIP Detail BPM5	Purpose Code IIP Detail BPM6	Type of Transaction Code	ISIN Codes Security Reference Number
			613771	IIP5A1DI2215	IIP6A1DI2215	242188H	AXIATA GROUP BERHAD	NON-FINANCIAL PUBLIC ENTERPRISE	J	61101	Assets	31910	31910		UNK
				IIP5A1DI2216	IIP6A1DI2216	242188H	AXIATA GROUP BERHAD	NON-FINANCIAL PUBLIC ENTERPRISE	J	61101	Assets	31910	31910		UNK
			623383	IIP5A1DI2225	IIP6L1DI2225	242188H	AXIATA GROUP BERHAD	NON-FINANCIAL PUBLIC ENTERPRISE	J	61101	Liabilities	31120	31120		UNK

4. Conclusions:

The implementation of this system has brought a lot of advantages and improvements in compiling the IIP statistics. This system replaced the conventional data collection whereby fewer human resources is needed. In fact, the system is able to notify and remind the reporting entities to submit their report before the deadline. The officers are no longer required to hands on the submitted report manually. Accordingly, the department can fully utilise the human resources and able to produce new statistics as this system needs fewer human resources as compared before. On the other hand, data collection is guaranteed with 100% response rate whereby reporting entities give cooperation by submitting the data online. In view of the favourable responses, the submission deadline was shortened to 15 days after the end of each reporting quarter, compared with 20 days previously. This system also helps to reduce in terms of costs. The maintenance fee of the system is relatively low which turns out to be a cost advantage. It is also cost effective since less paper works are needed. Time efficiency can also be

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achieved when human errors are minimized by using the system to generate report in just one click. Therefore, the release time of BOP and IIP statistics are reduced significantly from 8 weeks to 6 weeks after the reporting period. Meanwhile, the system can cater changes based on the recommendations or advice of IMF in the future. Moving forward, looking forward for the system to become the milestone to the other surveys in capturing online data instead of the conventional ways..

5. References:

- i. External Sector Statistics (ESS) System Guideline – Submission of International Transactions and External Position Information
- ii. User Requirement Specification (URS) – International Transactions and External Position System (ITEPS)