Seminar Component
Asia-Pacific Economic Statistics Week (22-26 May, Bangkok)

Name of author:

1. **Ms. Nazaria Baharudin**
   Senior Director
   Services Statistics Division
   nazaria@stats.gov.my

2. **Ms. Rusnani Hussin**
   Principal Assistant Director
   Services Statistics Division
   rusnani_isa@stats.gov.my

3. **Ms. Zoraida Dahalan**
   Assistant Director
   Services Statistics Division
   zoraida@stats.gov.my

Organization**: Department of Statistics Malaysia**

Contact address: **Services Statistics Division, 3rd Floor, Unit 01-05, Wisma Minlon, Batu 12, Lebuh Raya Sungai Besi, 43300 Seri Kembangan, Selangor Darul Ehsan, Malaysia**

Contact phone: **03 – 8947022**

Title of Paper

i-DT - Effective Dissemination Strategy of Malaysia's Distributive Trade Data

Abstract

Official statistics must be represented in a clear and easily understandable manner and it has been a continuous challenge for National Statistical Offices to develop means and channels for dissemination of the statistics produced using latest and effective technology to ensure that their users have access to the official statistics. Understanding the needs of reliable and easy access data, Department of Statistics Malaysia has taken one step ahead to develop an interactive channel to disseminate the Malaysia's Distributive Trade data. The benefit of these methods were enabling fast and easy access to data, more dynamic and user-friendly and facilitate wider access for users according to user requirements and level of access permitted. This paper will presents on the efforts taken by DOSM to ensure effective dissemination of the Distributive Trade data in respond to the growing needs of policy makers and different stakeholders as well as public users through its interactive portal i-DT. This paper will also discuss on the challenges faced by the Department during the developmental phase of i-DT and future strategy in maximizing the usage of IT technology in data dissemination. The revolution from conventional method of dissemination to i-DT is an innovative approach of data dissemination in line with the practice of other national statistical offices as well as the rapid development in information technology. The interactive facilities will assist users in searching 'live' Distributive Trade Data will enhance DOSM's service delivery system and bring the official statistics to a higher level within the community.

I. Contents

II. Introduction

In today's globalised economy, there has been an increase of demands for National Statistical Office (NSO) to provide wide set of data to users based on their specific needs. Users have always wanted to derive insights from the data produced by the NSOs in order to make better, smarter, real time, fact-based decisions. Thus, understanding these needs from the users' is the best way to know what to offer them.

As data volumes continue to grow, the demand for the data grows as well. To be able to contend with fast-growing pools of data and at the same time to meet the users demand for official statistics it has become a necessity for NSOs to develop an interactive portal as an effective dissemination medium. A portal that's user-friendly and highly interactive offers a level of flexibility that makes it easy for users to understand the data presented.

Taken these into consideration, DOSM have taken it one step further to develop an interactive portal for Malaysia's distributive trade statistics produced by the Department. Interactive Distributive Trade Portal (i-DT) is an improvement from traditional data dissemination platforms to incorporate technologies that are suited to disseminate Malaysia's distributive trade data online.

A. Literature Review

a) Larry Hartke (1997) [1] defines that dissemination is characterised as a procedure of discharging measurements through different medium e.g. printed and media. Larry Hartke (1997) explains that effective data dissemination means that statistical agencies should fully identify the potential data users community, effectively request their requirements and after that react expeditiously by giving the clients opportune and reasonable factual information that address those issues as close as could be expected under the circumstances. Therefore, it is essential for the produced data to be accessible, timely and relevant.

b) King (2003) [2] defines that central to the whole discussion regarding dissemination is the key question: 'Why disseminate?' King (2003,p. 96) states that 'in order to disseminate something effectively in any context, and to evaluate the success of that dissemination, we must first be clear what we intend to achieve'. Although not widely addressed in the literature, responses to this question were practically oriented and aimed to facilitate best practice by innovators and practitioners. In many texts, dissemination is understood to mean no more than awareness and/or understanding. However, others specifically addressed the additional need for action, moving beyond notions of action on the part of the adopter/adapter being 'given' or 'supposed', as is the case in the more traditional and common understandings of the term (King, 2003; The TQEF National Coordination Team, 1997).

c) Elyes Ben Hamida, Guillaume Chelius [3] explains that data dissemination protocols can be arranged into meet based and spine based methodologies. They depend on the idea of a virtual foundation which goes about as a meet area for the queries and data reports. Through the investigation of the distinctive methodologies, we have highlighted two exchange offs. The first is that if, on one hand, the utilization of an expansive virtual framework diminishes the problem area issue, and then again it builds the information query cost. A moment exchange off is that the use of a small virtual infrastructure may reduce the energy cost of data dissemination and collection but it may also reduce the protocol redundancy, reliability and robustness.

d) Daniel A. Keim[4] suggest that for data mining to be effective, it is important to include the human in the data exploration process and combine the flexibility, creativity, and general knowledge of the human with the enormous storage capacity and the computational power of today's computers. Visual data exploration aims at integrating the human in the data exploration process,

applying its perceptual abilities to the large data sets available in today's computer systems. The basic idea of visual data exploration is to present the data in some visual form, allowing the human to get insight into the data, draw conclusions,and directly interact with the data.

B. Online data dissemination in DOSM

Previously, most of the information was spread in printed forms. In tandem with the recognition of statistics as public goods and the dynamic change of ICT, currently most of the statistics are being made available and accessible via electronic medium such as website and mobile short messaging service (SMS) since 2009.

In ensuring the official statistics are widely accessible, the data are also disseminated through other local and international agencies' websites such as Ministry of Finance (MOF), Ministry of International Trade and Industry (MITI), Ministry of Agriculture (MOA), Bank Negara Malaysia (BNM), Economic Planning Unit (EPU), Malaysian External Trade Development Corporation (MATRADE), Malaysian Investment Development Authority (MIDA), ASEAN Secretariat, International Monetary Fund (IMF) and United Nations Statistics Division (UNSD). To ensure our responsibility to collect and disseminate data quality and timeliness, DOSM was developing the online medium to disseminate data such as:

i. Malaysia External Trade Statistics (METS)

In accommodating the increasing number of data requests for external trade statistics, Malaysia External Trade Statistics (METS) was launched in December 2010. Since then, the number of ad hoc data requests has reduced while the number of hits for METS has increased. The coverage for METS2 will be up to 5-digit SITC and 6-digit HS code and it will be an interactive system where selection of individual codes is enabled.

ii. Population Quick Info

DOSM has also introduced Population Quick Info to assist users in obtaining population data easier and faster. Users can download or print directly data which covers information on Inter-censal Population Estimates 1970–2010, Current Population Estimates and Population Projections 2010–2040.

iii. Social e-Atlas

Social e-Atlas is a web-based GIS application that aims to show the main theme of statistics at various geographical levels for user's requirement. This application is developed based on 7 main data themes which are Population, Vital statistics, Income, Labour force, Health, Education and Distributive Trade.

iv. Malaysia Informative Data Centre (MysIDC)

Malaysia Informative Data Centre (MysIDC) is a one stop information gateway of social and economic data for Malaysia. MysIDC contains data from the Department of Statistics Malaysia as well as other government agencies. The data presented in MysIDC include National Accounts, Balance of Payments and Investment, External Trade, Indexes, Industrial Production by Sector, Monetary and Banking, Labour Market, Population, Income and Expenditures Household, Agriculture, Environment, Education and Others Social Indicators.

C. The Development of Interactive Distributive Trade (i-DT)

Interactive Distributive Trade Portal (i-DT) is an improvement from traditional data dissemination platforms to incorporate technologies that are suited to disseminate Malaysia's distributive trade data online. In line with the Department of Transformation Plan 2015-2020 to ensure service delivery statistics remain relevant with the current developments and meet customer expectations.

The development of this application system is one step to realize the Department of Transformation Plan and it is our responsibility to collect and disseminate data quality and timeliness. Meanwhile, this data will also be used by other users such as government agencies, researchers, academics, business and international statistical agencies, embassies and investors. Higher data requirements, requires the provision of statistical instruments faster and accessible wherever they are. Therefore, a more recent evolution was developed in the dissemination distributive trade data.

i-DT development adopted Tableau software. The data were from the Census Distributive Trade conducted 2009 and 2014 reference year 2008 and 2013 for the wholesale trade, retail trade and motor vehicles. i-DT were provided in the form of interactive charts and tables that provided facilities to the user to get data directly in the portal. The coverage for i-DT will be up to 5-digit MSIC and state and administrative districts and it will be an interactive system where selection of individual chooses codes and level is enabled. Data can be

uploaded in CSV format, Microsoft Excel, PDF and image **(Figure 5).** i-DT consists of four category interactive was presented, namely:

a. Performance by sub-sector; **(Figure 1)**
b. Performance by activity; **(Figure 2)**
c. Performance by state; **(Figure 3)** and
d. Performance by administrative districts. **(Figure 4)**

Figure1: Performance of Distributive Trade Sectors

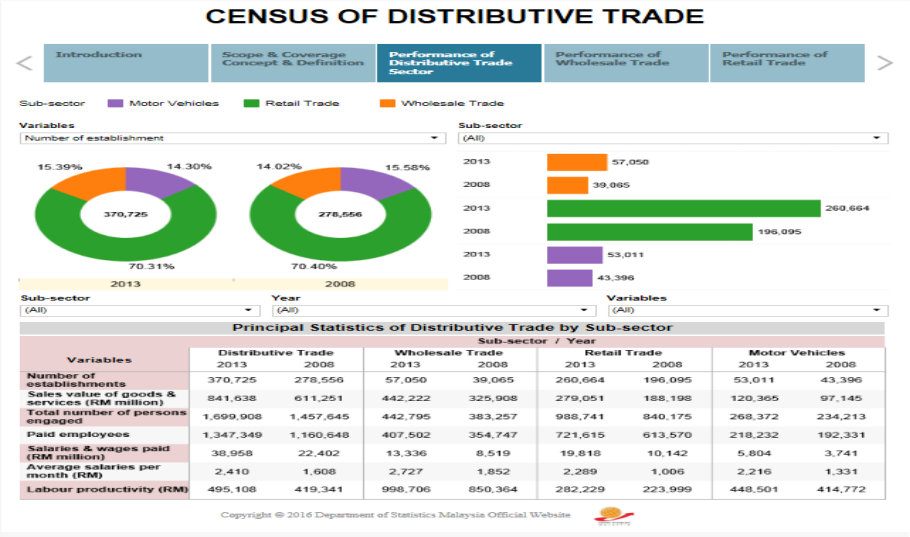

Figure 2: Performance by activity

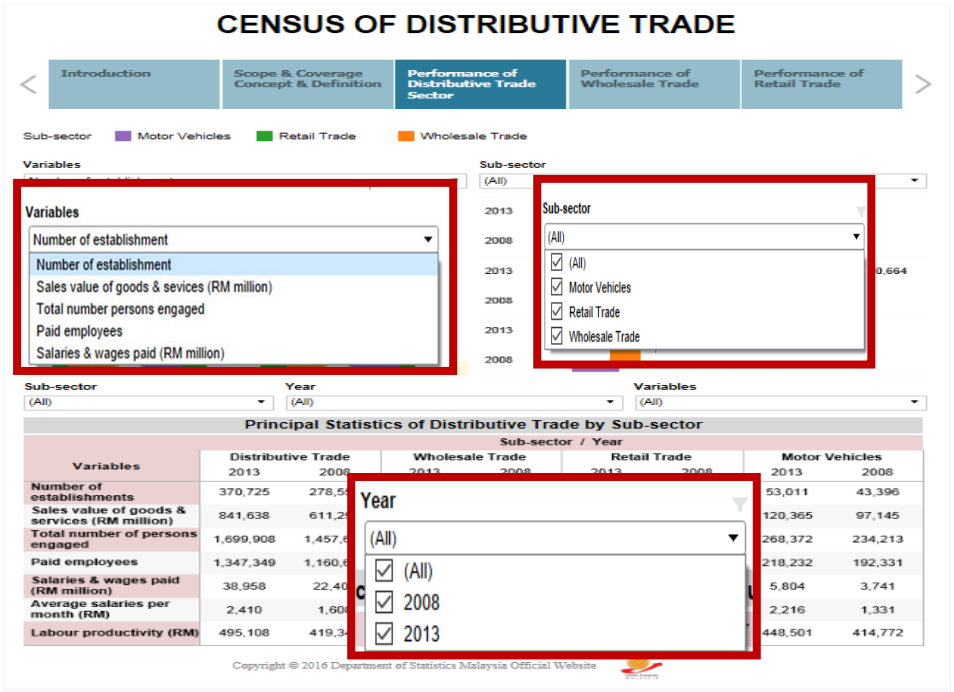

Figure 3:-Performance byState

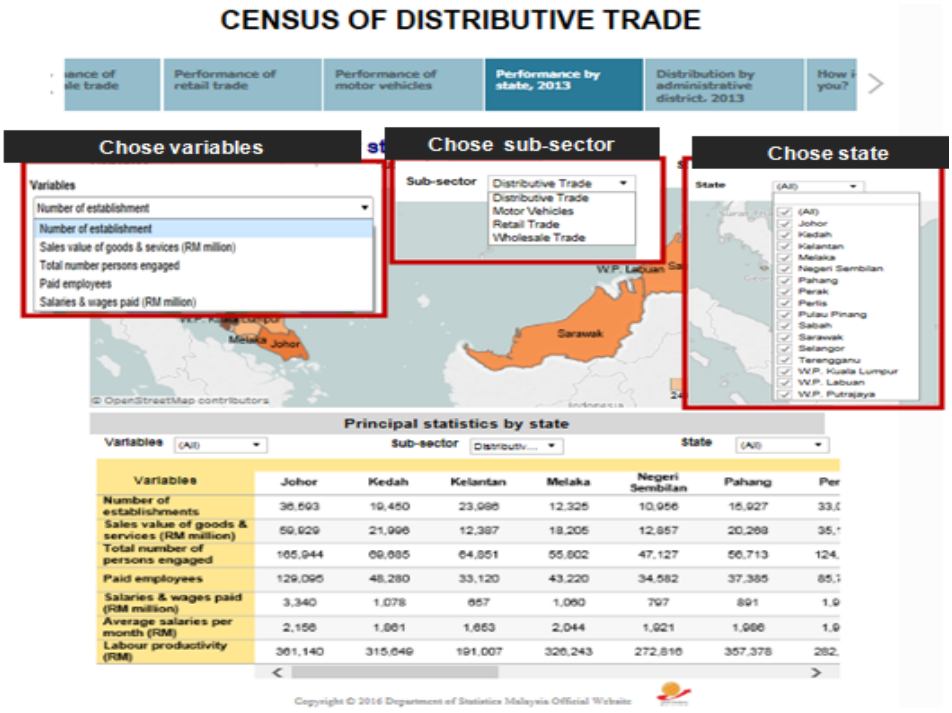

Figure 4: Distribution by administrative districts

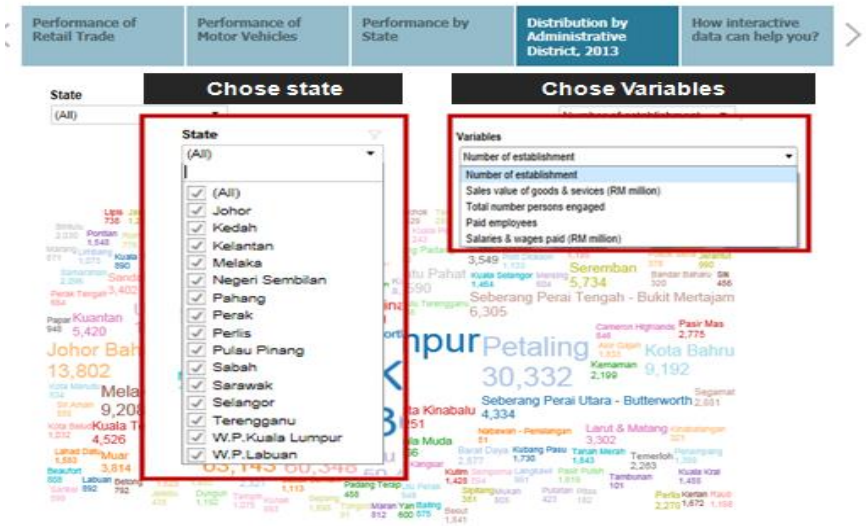

Figure 5: Data can be uploaded

D. Objective i-DT

a) To dissemination of distributive trade data to an instrument that is more dynamic and user-friendly;

b) i-DT can provide for faster data according to user needs the data that is increasingly dynamic and complex.

c) i-DT which it seeks to assist users in searching data for 'live' within the scope of the required while increasing Department services delivery system;

d) i-DT to be an instrument to assess the quality and quantity of demand, by monitoring the number of 'hits' recorded for the application; and

e) i-DT can bring the distributive trade statistics with the community at all levels.

E. Hits performance i-DT

Within the period of April 2015 to February 2017, the Census of Distributive Trade publications have recorded 5,442 hits. Online publications provide better accessibility and are user friendly.

However, i-DT was launched in 15 December 2016. Since then, the number of hits for i-DT has increased significantly to 1,311 hits until February 2017. i-DT is in the development process which covers more comprehensive data

Figure 6: Hits performance disseminations of distributive trade data

Publication / System	Numbers of hits	Numbers of month
Census of Distributive Trade, 2014	5,442	22 month
Interactive Distributive Trade (i-DT)	1,132	3 month

Effective and creative strategies be implemented to increase used of i-DT. DOSM has taken the initiative to develop video user guide i-DT for continuous deployment. In addition, the Department has also sent a notification letter and brochure to government agencies to purpose of publicity. The publicity i-DT is also enhanced through the website and engagement program with business associations and agencies.

The effectiveness of i-DT will be constantly improved to ensure that the system is flexible and in line with new requirements. Feedback from users will be used as input for the improvement of i-DT.

F. Challenges and strategy in maximizing the usage of IT technology in data dissemination

There are challenges faced by DOSM during the developmental phase of i-DT. Therefore, improvements have to be made to ensure that the

dissemination of data is reflective to the revolutions of IT technology. Among the areas that need to be looked into are:

a) Determination of the theme and design of interactive data and visualization

Interactive Distributive Trade Portal (i-DT) is an improvement from conventional data dissemination platforms to incorporate technologies that are suited to disseminate Malaysia's distributive trade data online. But it is a challenge to setting the topic and outline in i-DT dashboards. We must understanding of the activities of data that will be presented. Therefore, to face the challenges, i-DT was developed by the officers who are responsible and directly involved with wholesale and retail activities. The effectiveness of an appropriate theme can produce quality online dissemination data such as that's user-friendly and it easy for users to understand the data presented.

b) Data preparation in Tableau software

The challenges to prepare and compilation of data in Excel or CSV file for upload to the Tableau. In order to manage these things officers need to have expertise in software tableau. We need determine the variables and level of the data that will be used for the development of i-DT before doing the data preparation. The "data preparation" of the tableau is a very challenging task. Tableau builds reports and dashboards through the desktop, and then publishes them to the server. Once they are published, there is no way to recover a previous version as soon as you overwrite not recall. Tableau Server does not have the concept of history.

c) Addressing data quality

To find and analyse data quickly and put it in the proper context for the audience that will be consuming the data, the value of data for decision-making purposes will be affected if the data is not accurate or timely. This is a challenge with any data analysis, but when considering the volumes of data involved in big data, it becomes even more pronounced. Data visualization will only prove to be a valuable tool if the data quality is assured. To address this issue, the data governance or data management process in place to ensure the data is clean and quality.

d) Maintenance costs and special expertise

Dissemination online data requires the development and the maintenance costs are high and the system requires special expertise in the area of ICT. i-DT is also changed from time to time according to technological advances. Hence, the need for continuous improvement costs.

e) Limited availability of Internet infrastructure

The limited users who need the data exist due to the limited availability of Internet infrastructure**.**

III. Conclusion

In order to strengthen the statistics service delivery, DOSM has taken one step ahead to develop an interactive channel to disseminate. The experience of developing i-DT in the distributive trade sector was the revolution in the dissemination of statistics. Department of Statistics Malaysia has taken one step ahead to develop an interactive channel to disseminate the Malaysia's Distributive Trade data. Interactive application will assist users in searching 'live' data will enhance DOSM's service delivery system and bring the official statistics to a higher level within the community.

Continuous effort to enhance DOSM capability in statistics service delivery system in Malaysia is essential. DOSM is improving the instrument of data dissemination with develop the interactive portal. Despite the key role of DOSM to provide official statistics to the stakeholders, the success of official statistical system is also measured by its ability in fulfilling a variety of statistics that are required by the stakeholders, community, businesses and researchers on daily and real time basis. Collaborative efforts between DOSM and the stakeholders and agencies which used DOSM had signed Memorandum of Understanding for fulfill the need of agencies.

Although there are limitations in process developed i-DT, but it also proved to be a highly efficient method of dissemination data, which have the capacity in line with changes in technology. Thus, no wonder the interactive methods and visualisation gaining popularity to replace conventional methods of data dissemination. For the moving forward the same concept with i-DT will be used to developing of interactive data to dissemination Economic Census 2016 statistics.

Interactive Distributive Trade Portal (i-DT) is an improvement from traditional data dissemination platforms to incorporate technologies that are suited to disseminate Malaysia's distributive trade data online. Dissemination of distributive trade data to that is more dynamic and user-friendly; provide for faster data according to user needs the data that is increasingly dynamic and complex and bring the distributive trade statistics with the community at all levels. The effective of i-DT with recorded of 1,212 hits after 3 month go live in the DOSM portal.

We thank our colleagues Mr. Azizi Shamsuddin, Ms Nurul Aini Abdul Wahab, and Ms Nur Zeaty Azma Nor Hashim in the i-DT project and the effort in developed i-DT. We also thank to BPM team, BKKP team who developed the i-DT video user guiders.

IV. References

[1] Larry Hartke. (1997). *Effective Data Dissemination Principles and Practices for Statistical Organisations and Agencies*, United States Bureau of the *Census.*

[2] Deborah Southwell, Deanne Gannaway, Janice Orrell, Denise Chalmers, Catherine Abraham, *Strategies for Effective Dissemination of Project Outcomes, The University of Queensland and Flinders University, 2005.*

[3] Elyes Ben Hamida, Guillaume Chelius, *Strategies for Data Dissemination to Mobile Sinks in Wireless Sensor Networks, 2008.*

[4] Daniel A. Keim, *Information Visualization and Visual Data Mining, Human-Computer Interaction Laboratory University of Maryland, 2002.*

[5] Jeffrey Heer, *Interactive Dynamics for Visual Analysis, Stanford University Ben Shneiderman, 2001.*

[6] *Good Dissemination Practices in Statistics New Zealand and Statistics Denmark,* Statistics Denmark. 2003.

[7] Holger Lausen, Michael Stollberg, Rubén Lara Hernández, Ying Ding, Sung-Kook Han, *Dieter Fensel Semantic Web Portals – State of the Art Survey, University of Innsbruck, Austria,2001.*

[8] Mohd Uzir Mahidin, Kanageswary Ramasamy, Suhaily Safie and Mohd Firdaus Zaini. *Best Practices for Compilation of Official Statistics: Where Are We? Journal of the Department of Statistics Malaysia, 2012.*

[9] Petra Isenberg, Tobias Isenberg, Tobias Hesselmann, Bongshin Lee, Ulrich Von Zadow, *Data Visualization on Interactive Surfaces: A Research Agenda. IEEE Computer Graphics and Applications, Institute of Electrical and Electronics Engineers, 2013*

[10] Catherine Plaisant*, Human-Computer Interaction, Laboratory University of Maryland, 2004.*