Singapore's Producer Price Indices E-Survey System (PIES)

for

Cross-cutting topic (1) – New methods and challenges employed by NSOs post-pandemic to collect data "electronically" in lieu of in-person

Introduction

Producer Price Indices compiled by Singapore Department of Statistics (DOS)

Services

Accounting Services Price Index

Computer Consultancy & Information Services Price Index

Warehousing & Storage Price Index

Telecommunications Services Price Index

Freight Forwarding Price Index

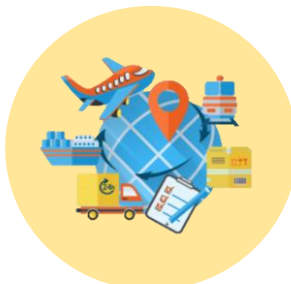**Sea Freight Transport Price Index**

Cargo Handling Price Index

Air Transport Price Index

Goods

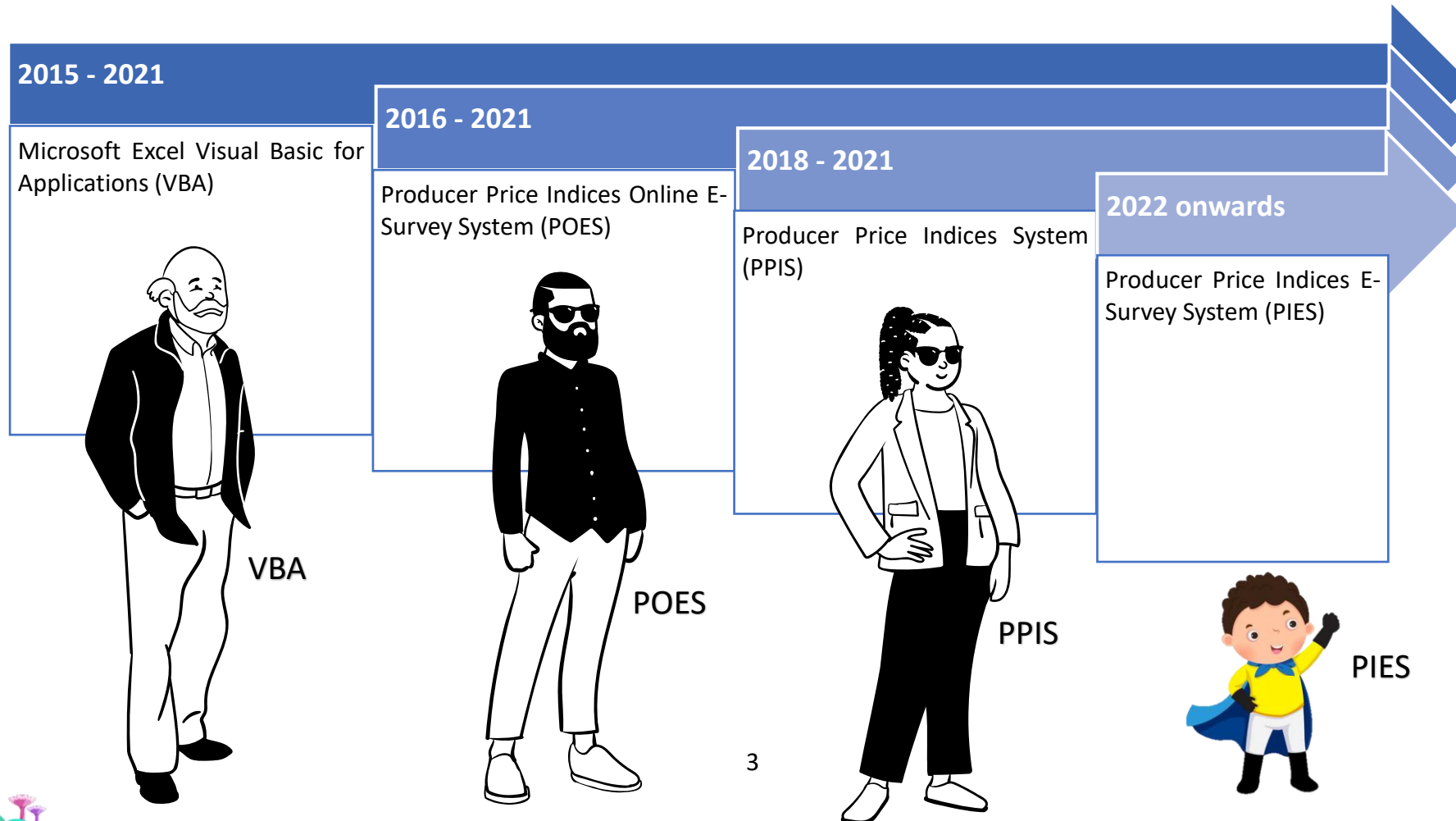**Import Price index**

Export Price index

Singapore Manufactured Products Price Index

**Domestic Supply Price Index**

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DOS's Digital Transformation

As part of DOS's digital transformation, we are constantly adopting and implementing digital technology to facilitate the compilation of the various price indices. Our operations have been supported by the following software and systems:

2015 - 2021

Microsoft Excel Visual Basic for Applications (VBA)

VBA

2016 - 2021

Producer Price Indices Online E-Survey System (POES)

POES

2018 - 2021

Producer Price Indices System (PPIS)

PPIS

2022 onwards

Producer Price Indices E-Survey System (PIES)

PIES

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Producer Price Indices Online E-Survey System (POES) & Producer Price Indices System (PPIS)

POES the data collector
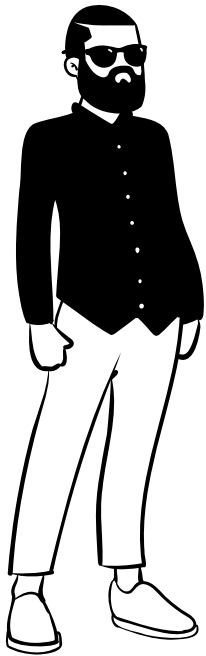
- **Data Collection** system developed in 2016 for surveying respondents via email or online

- **Features**

  - Allows users to **generate survey forms** to conduct surveys via email or online

  - **In-built validation checks** to ensure the data entered by survey respondents are sensible

Data Transfer
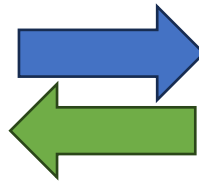
PPIS the data compiler

- **Data processing** and **index compilation** system developed in 2018

- **Features**

  - Enabled users to **compile producer price indices** based on the defined index structure using the selected index formula

  - Allow users to carry out **price imputations** such as carrying forward previous month's prices or applying a weighted average price change of a group of linked items within the price index

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Limitations of having 2 separate systems POES and PPIS

- 2 separate systems developed by different vendors, hence **resources were expended to ensure smooth communication between both systems**.

  ➢ E.g., POES output files had to be modified to meet the input requirements of PPIS to be transferred and uploaded successfully. Hence, DOS officers must also take the additional step to **verify the accuracy of data transfers** between both systems.

- **Additional costs** were incurred to host and maintain 2 systems.

- **Time and effort** were spent to manage 2 different vendors.

- **Survey forms generated by POES were not customisable** to incorporate any new data items to reflect relevant changes in the industry. The lack of any customisability also resulted in **costs incurred** as the vendor of POES had to create bespoke modules to meet the requirements of newly developed or rebased price indices.

- As a stop-gap solution, DOS officers wrote Visual Basic for Applications (VBA) Macros using Microsoft Excel to generate the customised survey forms externally from POES. However, **significant manual effort** was still required by DOS officers to actively manage and debug the codes for the respective price indices. Furthermore, the **data transfer issue** caused by managing 2 separate databases persisted.

Development of PIES

- Considering the limitations of POES and PPIS, and the accelerated digitalisation exacerbated by the COVID-19 pandemic, DOS initiated the development of **PIES**

POES + PPIS = PIES
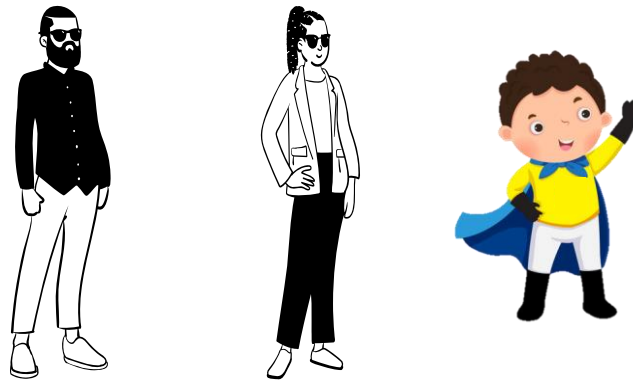
- An **integrated system** whereby **data collection, data processing and index compilation** can be conducted on a single platform

- Addressed most of the limitations of POES and PPIS as it is **cost effective** and **saves resources**

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Development of PIES

Initial Fact Finding	• Sharing of DOS officers' requirements with vendor • Vendor assisted to gather, analyse and confirm the requirements for development
System Design and Planning	• Discussion of system design between DOS officers and vendor • Conduct of usability interview and workshop with stakeholders
System Development	• Development of PIES based on finalised system design
User Acceptance Testing	• System testing performed by DOS officers and vendor before PIES go live
System Commission	• Data migration from POES and Microsoft Excel VBA database • System was commissioned and live on January 2022

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Functions of PIES

1. Setup index structure, product details and weights

2. Upload and maintain firms and respondents' information

3. Design survey templates for customised survey forms

4. Send out survey forms and collect survey data via (1) Email or (2) Online E-Survey

5. Process survey returns and undertake imputations

6. Compile indices and generate reports for dissemination and servicing of data requests

Functions of PIES – Setup index structure, product details and weights

Functions of PIES – Maintain firms and respondents' information

Captures all the relevant information (e.g., contact details, mailing address) of the respondents surveyed

View Establishment

Establishment Id	51210		
Index Series	201 - Sea Freight Transport Price Index (SFTPI)	Base Period	2022 (Jan 2022 - Dec 2022)
Estab Code	A0000132	UEN	T08GA0040K
Estab Name	TEST ESTABLISHMENT	Company Status	Active
Company Website	-		

Respondent

Respondent Id	55055	Respondent Access ID	4jy9Aq99v9
Resp Code	1	Active	Yes
Resp Name 1	TEST RESP NAME 1	Resp Name 2	TEST RESP NAME 2
Designation 1	TEST DESIGNATION 1	Designation 2	TEST DESIGNATION 2
Department 1	TEST DEPARTMENT 1	Department 2	TEST DEPARTMENT 2
Attention Person	Resp 1		
Preferred Mode	Email	DNS	No
Preferred Freq	-		
Preferred Data Gran	-	Survey File Format	Excel
Email Password Protection	7N95v<<UEN, -3>>	Email Protection Option	Zip folder
Email Password Description	7N95v		
Downloaded File Name	SFTPI_<<Survey Period From>>-<<Survey Period To>>_<<Establishment Name>>		
Mailing Address 1	TEST MAILING ADDRESS 1		
Mailing Address 2	TEST MAILING ADDRESS 2		
Mailing Address 3	TEST MAILING ADDRESS 3		
Main Tel	-		
DID	61234567		
Email	Respondents@gmail.com		
Email CC List	-		
Email CC List (Officer)	DOS_Officers@gmail.com		
OIC1	Llewellyn Ho		
Notify OIC1	No	Notify OIC2	No
Officer Sect	1	Sign Off Officer Name	Llewellyn Ho

Unique access code for respondents to login and access the e-survey

Allow DOS user to specify the file name and format of the survey form. In addition, the survey form can be password protected based on user settings

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Functions of PIES – Design Survey: 'Customise survey item' Template

Functions of PIES – Design Survey: 'Customise Survey' Template

Functions of PIES – Survey Sending (Excel/PDF Form)

UEN: 123456789C

ABC PTE LTD

SINGAPORE DEPARTMENT OF STATISTICS

Sea Freight Transport Price Survey

Survey Period

Mar 2023 - May 2023

1) Please provide the requested information for the services specified in the survey form. If the pre-filled information is incorrect or has been revised, please contact the officer-in-charge to make the necessary amendments.

2) If a service has ended, please provide a replacement by filling up the attached replacement form with the requested information of the new service. Please make extra copies of the replacement form if there is more than one replacement service.

Container Liner Service (Asia - Europe):

Service Route Name (If applicable)

Port of Loading in Asia

Port of Discharge in Europe

Container Load Type

	Currency	UOM	Feb 2023	Mar 2023	Apr 2023	May 2023
Rate						
Ocean Freight Rate						
Load Port Terminal Handling Charges						
Discharge Port Terminal Handling Charges						
Bunker Adjustment Factor						
Other Seaborne Surcharges						
Remarks						

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Functions of PIES – Survey Sending (Online E-Survey Form)

Survey:
Sea Freight Transport Price Survey

0101010101026

0101010102007

0101010104003

Replacement Liner(Intra - Asia)

Replacement Liner(N America)

Replacement Liner(Europe)

ⓘ This replacement form was generated as you had indicated that one service/item under survey form: 0101010104003 had ended. If you are unable to provide a replacement for the ended service/item, please delete this form using the "Delete Item Form" button at the bottom of this page.

ⓘ 1) Please provide the requested information for the services specified in the survey form. If the pre-filled information is incorrect or has been revised, please contact the officer-in-charge to make the necessary amendments.
2) If a service has ended, please provide a replacement by filling up the attached replacement form with the requested information of the new service. Please make extra copies of the replacement form if there is more than one replacement service.

Container Liner Service (Asia - Europe):

Service Route Name (If applicable)	
Port of Loading in Asia	
Port of Discharge in Europe	
Container Load Type	

	Currency	UOM	Jun 2023	Jul 2023	Aug 2023	Sep 2023	Oct 2023	Nov 2023	Dec 2023
Indicate as No Price			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rate									
Ocean Freight Rate									
Load Port Terminal Handling Charges									
Discharge Port Terminal Handling Charges									
Bunker Adjustment Factor									
Other Seaborne Surcharges									

Remarks	This is to replace a service/item you indicated as ended in survey form: 0101010104003

Supporting Document (Optional)

Save as Draft

Close without Saving

< Previous Form   Go to Replaced Item   Delete Item Form   Proceed to Submit

Functions of PIES – Survey Processing

Functions of PIES- Compile indices and generate report

Compiled data are generated from PIES and subsequently used to prepare the report for dissemination.

Services Producer Price Indices
Second Quarter 2023

Singapore Manufactured Products &
Domestic Supply Price Indices
August 2023

Import & Export Price Indices
August 2023
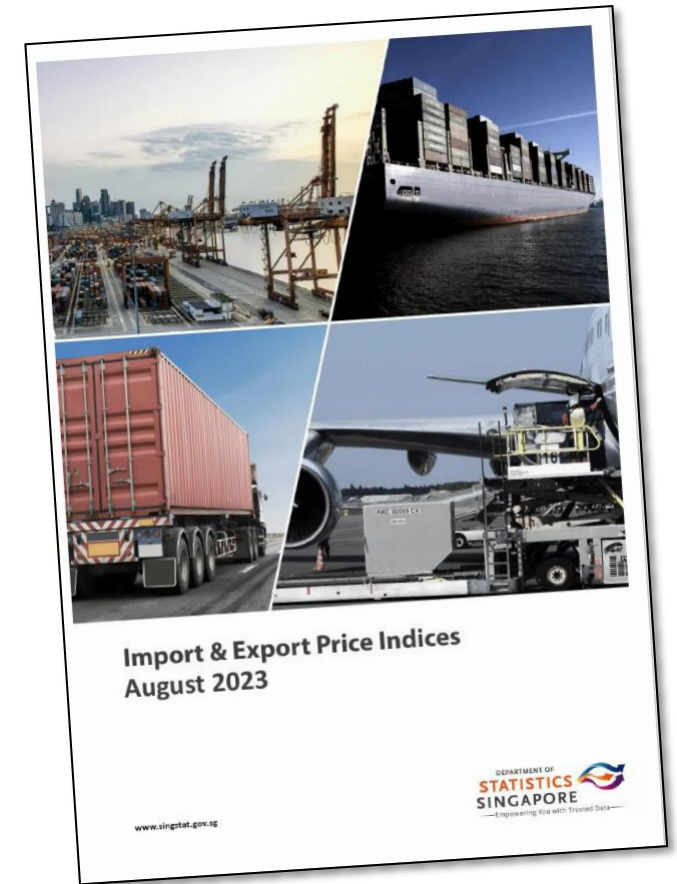
Conclusion

- **Covid-19 has changed the way people work:**
  - More respondents are shifting to working remotely
    - Postal surveys not as effective
    - Spike in submissions via email and e-survey

- **Accelerated DOS's digital transformation** in survey operations

- **Consideration for digital illiterate respondents**
  - Industry specific (e.g. cargo handling) where most still prefer postal surveys

- Development of PIES has **improved work productivity** and provided **greater convenience** to our respondents.

Thank you

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