

**UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE**

CONFERENCE OF EUROPEAN STATISTICIANS

Seminar on Statistical Data Collection
(Geneva, Switzerland, 25-27 September 2013)

Topic (ii) - Managing data collection functions in a changing environment

MEETING DATA COLLECTION CHALLENGES IN A CHANGING ENVIRONMENT

Working Paper

Prepared by Adeline Ng and Yap Huixiang, Manpower Research and Statistics Department, Ministry of Manpower, Singapore

I Introduction

1. Singapore's national manpower statistics is a vital resource for both the government and community-at-large. The rapidly changing economic and social environment and the growing emphasis on evidence-based policy-making have led to rising demands to track more closely new trends and developments in the Singapore labour market. The statistical information also helps job seekers, employers and employees make informed decisions on career and human resource matters.
2. This paper describes the challenges and the major initiatives that the Manpower Research and Statistics Department (MRSD) of the Ministry of Manpower, Singapore, has undertaken in recent years to meet the multi-pronged challenges faced in the collection of national labour market statistics. It also highlights the key initiatives in the pipeline, as we seek to stay ahead in a fast changing environment.

II Driving Forces For Change

A. Understanding a fast changing economic and social environment

3. The rapidly changing economic and social environment has led policy makers and Singaporeans wanting more detailed labour market statistics to understand the changing dynamics and their impact on workers and workplaces. This has caused a substantial rise in the volume and complexity of statistical information that needs to be captured through national surveys, translating to growing reporting burden on our respondents, especially companies. The growing economy has also led to increased data collection efforts due to growing sample sizes.
4. More complex questionnaires are increasingly required to capture deeper labour market issues, where often there are no international statistical standards on best practices to guide the data collection. The challenge is to translate the information required by users to easy-to-understand/administer questions that allow respondents to provide the information required for

the survey. The greater granularity and complexity of data captured also require the creation of more complex online survey templates and validation rules, as well as higher levels of probing and explanations.

B Meeting respondents' rising expectations

5. The general public has grown more discerning and vocal over the years, frequently questioning the objectives of the national surveys. The compulsory participation of national surveys is increasingly being challenged, as respondents require persuasion rather than coercion to participate in the survey. There is also little tolerance for poor service delivery, especially from inexperienced survey interviewers who are unable to probe skillfully and politely.

C Managing staffing needs of a more demanding collection function

6. Over the last few years, MRSD has been relying on more temporary survey interviewers. While this enables more responsive manpower management and flexibility to conduct multiple surveys concurrently, the quality of data captured now hinges even more on data cleaning, validation and preserving high response rates.
7. In addition, new capability needs have emerged as the reliance on temporary workers to conduct survey interviews grow. These include management and supervision of large numbers of temporary interviewers, delivering effective training using adult learning methodologies and approaches, and more comprehensive data validations and editing checks.

III Major Initiatives

8. This section describes the major initiatives undertaken in recent few years to address the challenges mentioned above.

A. More targeted surveys

9. Over the last few years, new survey programmes have been launched to assess and monitor specific labour market topics or labour force segments. These include establishment-based surveys conducted to understand the quality of workplaces, employment of older workers and employers' challenges in managing manpower needs. On the individual front, specific surveys were also conducted to understand employees' working conditions, employment outcomes of laid-off workers as well as motivation and barriers to work of potential entrants to the labour force. The output from these statistical programmes forms vital inputs to the formulation of new policies and programmes and monitoring of their outcomes, such as the re-employment legislation which was implemented from 2012.

B. Leveraging on technology

1. Integrating the Collection processes via a three-in-one IT system

10. The Integrated Manpower Survey System (iMSS) commissioned in March 2010, is a three-in-one integration of survey systems across the internet and intranet environments. It amalgamates the traditional standalone survey systems (namely the Internet Household Survey System, Internet Establishment Survey System, Survey Management System and Computer Assisted Telephone Interview System) into one single platform for the conduct of all surveys by the department.
11. When launched, it was the world's first integrated internet-cum-intranet platform for the conduct of surveys by national statistical agencies. The seamless integration of the collection processes from start-to-finish shortens the survey turnaround time, and improves data timeliness and quality, as online routing and data entry and consistency checks prompt respondents and interviewers of missing, invalid or inconsistent entries so that these can be corrected on the spot.

The platform also provides real-time monitoring of key survey indicators even as the surveys are on-going.

12. The iMSS has the following capabilities and advantages:

Function/Module	Capability	Advantages
Survey and rule editor	Addition, amendment and deletion of questions in the survey e-template, covering typologies such as checkbox, dropdown, matrix, textbox and calculation matrix.	Survey managers without complex programming skills can amend/create the e-template without going through any third-party. Turnaround time for the launch of online surveys is greatly reduced.
Sampling	Auto-sampling of a survey from the survey frame, using embedded programmes.	Unless there are amendments to the sampling methodology, the samples are auto-generated.
Live dashboards	Monitoring of survey progress (eg, by geographical area) using a traffic light system. Key indicators can be generated when survey is still on-going.	Live monitoring of survey progress
Short Message Service (SMS) submission mode	Respondents are able to submit their survey returns via sms using their handphones. The returns will be captured in the system.	Suitable for very short answers, eg. Yes/No.
Front-to-back integration	Interviewers are able to validate and query respondent's inputs in the internet environment and assist to fill up the forms online.	Ensure data quality as all survey responses will undergo the same set of validation rules. Enables interviewer to toggle between internet and intranet modes of the survey system.
Survey management	Generation of progress reports by survey, including interim response rates and case status by interviewer / supervisor. Sending of reminder alerts (sms and emails) to respondents.	Performance of each interviewer and supervisor is tracked and monitored to ensure efficient staff deployment. Enables the efficient management of reminder notifications.
Job Control	Enables case assignment, tracking and retrieval of assigned cases by officer ID.	Enables better management of interviewers, especially for large surveys.
Audit trail	User access control to govern access of the various application functions. An audit trail enables management to analyse the most frequently edited survey item, and by which interviewer/supervisor.	Ensures accountability and data integrity.

13. Given the high internet penetration rate in Singapore, the iMSS has facilitated e-submission for our survey respondents. The integrated platform enables a centralised database, with the data collected from the internet synchronised with that collected through phone and fieldwork. This provides respondents with the flexibility to switch submission modes during the survey, with no time lag in data update. As Collection officers only need to deal with one central database, better verifications and greater efficiency are achieved. With the iMSS, survey managers can now

manage their surveys from start to finish under one IT platform, with audit trails to ensure accountability and governance.

14. The diagrams below provide a high-level system overview of system users (administrators, supervisors and interviewers) and survey respondent touch points and system interfaces (Figure 1), as well as the module-level overview depicting the various components in iMSS (Figure 2).

Figure 1: High-Level System Overview

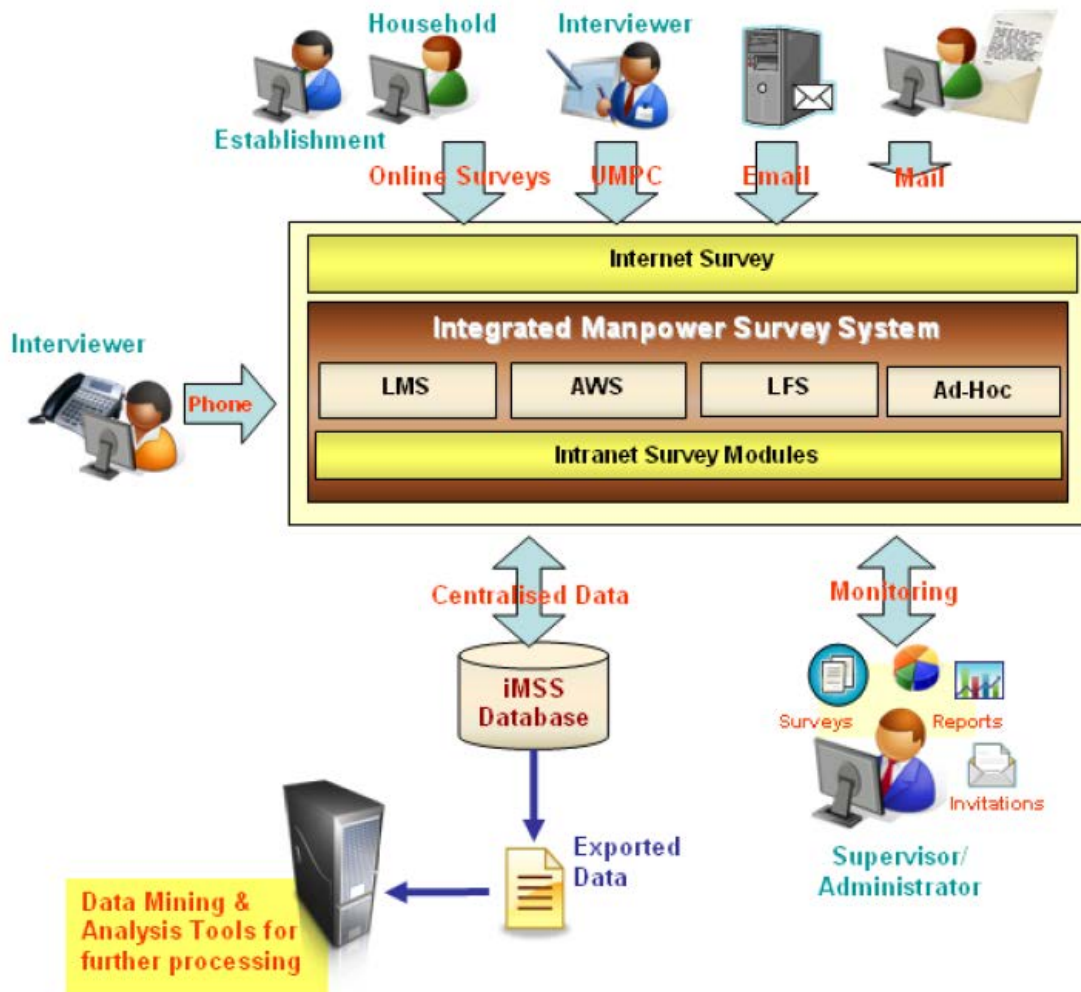
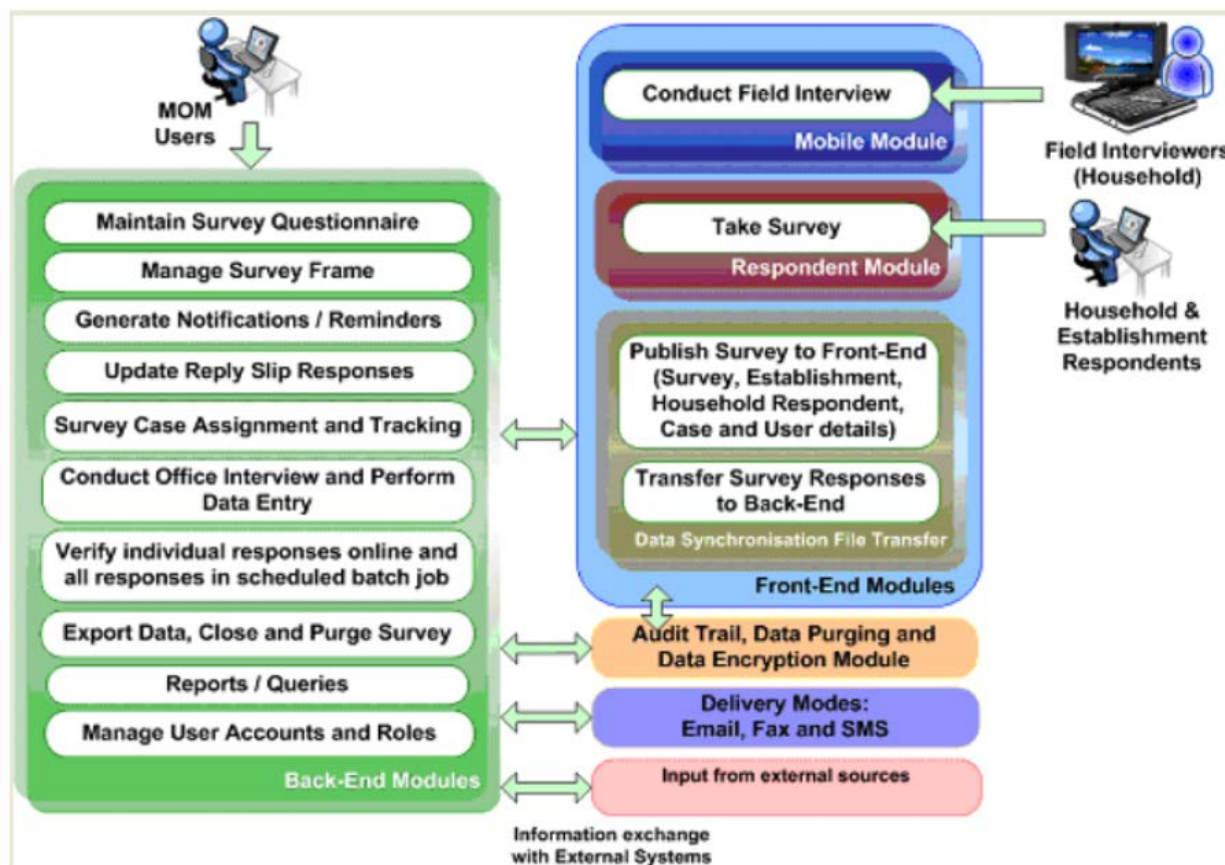


Figure 2: System Module-Level Overview



2. Enhancing training through e-learning

15. MRSD has an e-learning portal for training of interviewers to carry out national surveys on establishments and households/individuals. It was commissioned in October 2010, with eleven e-modules developed progressively over the years. To date, the e-learning mode has been successfully integrated into our training programme, which also comprises classroom training, role plays, mid-survey debriefings and quizzes.

16. Through the e-learning portal, interviewers are able to achieve up to 13-hours of e-learning on their own, prior to the classroom training. This interactive platform adopts adult learning methodologies¹ to deliver e-learning, covering objectives, concepts and definitions for specific surveys, data coding, customer service skills and probing techniques in anticipation of fieldwork challenges. There is also an interactive iMSS module for interviewers to try out the online survey platform before the classroom training on the actual system. First-time interviewers are more confident after the e-learning, and are more prepared for and know what to expect in the classroom training.

17. The existing e-learning portal comprises the following components:

- Generic interactive (level 1²) modules on customer service and probing skills, and national industrial, occupational and educational classifications.

¹¹ The design of the content include: instructional design techniques, graphics, animations and multi-media.

Frequent recalls of key points and quizzes are used to reinforce learning, as he/she progresses through the modules.

² Level 1 interactivity includes simple graphics, animations, audio narration and true/false multiple choice exercises.

- Survey specific modules on common probing scenarios.
- Level 2³ interactive module (semi-simulation) on the iMSS.
- Online quizzes.
- Reports generation to allow trainers to track learners' progress

An example in the probing module


Circumstance: Answers need greater details/accuracy

? Click on Next to proceed.

Need details/accuracy

To nudge respondents to provide greater details and/or accuracy as required in the survey questionnaire

Example:




Allie Gan
Freelance Graphic Designer

I'm not so educated.

I see, can you share which level of education you stopped at?

I stopped after secondary school.

Oh I see, did you receive an 'O' or 'N' level certificate?



Michelle Ong
MOM Interviewer

An example of a drag-and-drop test in the iMSS module

👉 Drag and drop each description to its correct category, then, click on Done.

IMSS Intranet

MSOL Administration

To view past survey responses

Decide if each of the following uses the Intranet or Internet portal. Drag and drop them to the correct category on the left or right.

- To **update** households' or respondents' **profiles** for completed cases
- To **edit completed/submitted** cases
- To view progress reports
- To **edit** survey responses for **incomplete** cases
- To **enter information** for cases completed **via interviews**

MSOL Internet

Manpower SurveyOnline

To **update** households' or respondents' **profiles** for incomplete cases

³ Level 2 interactivity includes more complex responses and instructional cues. Involves simulations based on different test scenarios, and interactive animations.

C. Managing respondents' expectations

1. Respondent engagement programme

18. Every six-monthly, MRSD conducts focus group engagement of establishments who respond to our surveys. Through this platform, face-to face interactions and rapport are built between MRSD and the respondents. The sessions facilitate buy-in from respondents through more in-depth sharing on survey objectives, and how their survey inputs can shape policies and programmes that will directly impact businesses. We are also able to hear respondents' concerns and challenges in filling up the survey forms and meeting our timelines.

2. Voucher incentive programme

19. A voucher incentive programme was started in 2009 for household/individual respondents who have participated in MRSD's national surveys over repeated rounds of the survey. The incentive programme has facilitated high response rates. It entails a new operational process comprising voucher storage, detailed record keeping, tracking of returns/non-receipts, approval processes and audits.

IV New Initiatives

20. Starting from 2013, MRSD will be implementing new systems and processes to facilitate greater effectiveness and efficiency in survey collection and better respondent/user experiences. Below are the new initiatives that we have started or will be embarking on over the next few years:

A. Behavioral Insights (BI)

21. From mid-2013 onwards, MRSD would be rolling out randomized controlled trials of behavioural interventions aimed to raise the internet mode of submission and the overall response rates. This is done in consultation with the UK Cabinet Office's Behavioural Insights (BI) team.

1. Nudging to raise internet mode of submission

22. Using Behavioural Insights, we are redesigning our survey notification and reminder letters, simplifying them to contain only salient points with key messages highlighted upfront. Adapting from eye-tracking research, important instructions were placed in headings and boxes, and actions required placed near the headlines. In a few months' time, respondents will be addressed by name in the reminder letters/sms for greater personalization. We will also be introducing a monthly draw prize (e.g. shopping voucher) to nudge respondents to complete the survey online.

2. SMS opt-out options

23. Previously our survey reminders via SMS were only activated for respondents who requested for this service. Starting from August 2013, sms reminders will be sent by default for household respondents. Those who prefer not to receive sms reminders will have to opt-out of this channel.

B. Creating value for respondents through AutoBenchmarking

24. One of the common difficulties in data collection is refusal to participate in the survey as the establishments or individuals do not see a direct benefit of doing so. In July 2013, MRSD launched a free online service enabling employers and employees to benchmark their organization's performance against national or industry norms on wages, staff turnover and employment conditions.

25. Establishments which participate in our national manpower surveys can have their company's data automatically populated (using their survey responses) for them to compare against the

benchmark of their choice through an *AutoBenchmark* module. This is one of the world's first in empowering users to benchmark against official manpower data.

Amongst **World's First*** in empowering employers & employees to benchmark against official manpower data

Benchmarking Tools

Wages



OCCUPATIONAL WAGE SEARCH

Find out where your pay ranks within your occupation.



WAGE CHANGE & BONUSSES

Compare your pay rise & bonus payouts against industry norms.



WAGE FLEXIBILITY

See how flexible is your organisation's wage system.

Employment Conditions



WORK-LIFE ARRANGEMENTS

How family-friendly is your organisation? Check out various work-life arrangements & family-friendly leave benefits in your industry.



FAMILY-FRIENDLY PAID LEAVE BENEFITS



MEDICAL LEAVE

Compare medical leave taken by your employees against national or industry norms.

Staff Turnover



RESIGNATION, RECRUITMENT & JOB VACANCY

Compare staff movement with national or industry norms for better HR management.

AutoBenchmark



***World's First**
AUTOBENCHMARK
SingPass

Exclusive to Survey Respondents ... your data will be automatically populated



26. This benchmarking module is part of a whole suite of online data services including interactive charts, dynamic dashboard, faceted search and understanding statistics module that MRSD has recently launched in our new interactive website at <http://stats.mom.gov.sg>. This is a new initiative at encouraging wider usage and understanding of official labour market statistics. Specifically, it seeks to i) enhance our engagement with industry and garner greater buy-in from survey respondents, ii) help establishments gauge their performance and raise industry standards through benchmarking, and iii) enhance the analytical capability of data users.



The **New Interactive** Website for
Labour Market Statistical Information

stats.mom.gov.sg



Benchmarking Tools

A suite of online tools enabling employers & employees to benchmark their organisation's performance against national or industry norms on wages, staff turnover & employment conditions.



AutoBenchmark

Exclusive to Survey Respondents: **AutoBenchmark** automatically populates the company's data using their survey responses, to facilitate benchmarking.



Key Indicators

A dynamic dashboard of top-line figures & findings on key indicators for a statistical snapshot of Singapore's labour market.



Interactive Charts

Empowers users to draw their own insights into Singapore's labour market by exploring official data through **interactive charts**.



Find Statistics & Publications

A new multi-faceted search feature by labour market topic, document type and/or year for quick & easy access to a wide range of official statistical information.



Understanding Statistics

Helps users understand manpower statistics through **video-clips, FAQs, quizzes & articles** on concepts, uses & limitations of key indicators.



C. Leveraging on payroll software companies for establishment-based surveys

27. Oftentimes, a common complaint by establishments is the tedious extraction of the establishment's manpower data for the quarterly labour market surveys. Learning from practices commonly adopted for tax-filing, MRSD will be doing a feasibility study on providing an Extensible Markup Language (XML) file structure of our quarterly labour market questionnaire to be uploaded online. This will enable payroll software developers to customise their payroll software to enable the extraction of manpower data from their client's payroll system. This can then act as an interface to the online submission of our quarterly surveys.
28. With this feature, establishments will be able to pull out the relevant information using their payroll software to fill up our quarterly labour market questionnaire online. This saves time, and allows more accurate data submission as the data are validated first by the software during extraction. Downstream, this can lead to better quality statistics and fewer call-backs.

V Conclusion

29. With a fast changing environment, especially for a small open economy like Singapore, there is high demand for timely labour market statistics from policy makers and the community-at-large. This has made data collection of MRSD especially challenging, as we grapple with rising data needs, higher respondents' expectations and heavier demands on staffing capabilities.
30. Over the last few years, we have met these challenges through multiple approaches. This included conducting more targeted surveys, leveraging on IT for process integration to enhance data capture and timeliness, making use of e-learning to complement our interviewer training and beefing up on respondent engagements. As with all evolving landscapes, what has worked well in the past may not be sufficient to meet the changing demands of the future. As such, we have recently embarked on new initiatives including behavioural insights, benchmarking for survey respondents and feasibility studies for XML formats, in a bid to stay ahead of the changing collection demands.