

Reimagining National Statistical Systems

**Risks and Opportunities
for Official Statistics in
the Public Data Agenda**

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From Statistics to Data

- Clear shift in development narrative from a focus on National Statistical System to National Data System.
- Even United Nations Statistics Division, the supposedly champion of the global statistical system, now organizes 'Global Data Forum', rather than 'Statistics Forum'.
- Is there a difference between the two? How do we differentiate 'Statistical System' with 'Data System' ?
- Is **Data** replacing **Statistics**?

World Development Report 2021

- WDR 2021 carries the theme: Data for Better Lives.
- Concept Note makes some controversial characterizations:
 - “Public Data” as “Traditional”, and “Private Data” as “New”. (p.10)
 - “There is a persistent need to improve the availability, quality, timeliness and policy relevance of public data”. (p.18)
 - “Realizing the potentials of Public Intent Data will require a new vision of a unified, national data system”. (p.19)
 - “Traditional data institutions, such as NSOs, may need to adapt to improve the flow and use of data”. (p. 34)
- Strong indication that WDR will suggest a National Data System which will encompass the National Statistical System.
- Will WDR define the new role of the NSS and NSO? Will WDR explain the interface of the Data System and the Statistics System?

Critical to have A Balanced Narrative

- Would low-income countries be able to deliver an organized National Data system, if they couldn't deliver a fully functioning Statistical System?
- In some countries, there is a turf war between the ‘Data Agency’ and the ‘Statistics Agency’. Will WDR, a globally respected publication, tip the balance?
- A balanced narrative will have to define the specific roles of each system. The two systems are different. Their respective roles should be clearly specified.
- A strong argument can be made on their complementarity, rather than one subsuming the other.

WB's Malaysian Proposal

National Data Council (Supreme Authority on Data and Information)

- Manage data and information resources
- Enhance integration and efficient use of databases

Office of Chief Statistician

- Respond to directives on national priorities
- Ensure proper overall statistical system capability

Office of Chief Data Officer

- Merge and coordinate multiple-source information
- Facilitate data management strategies

On 9 Sep 2020, Malaysia Cabinet approved the formation of National Statistics and Data Council

A New Era of Adaptation for NSS

- In the era of aggressive public data agenda, what is the new role of NSS? Should there be a change?
- For decades, NSS carried the burden (and honour) of providing the critical numbers for understanding the economy and the society.
- National Statistical Organization (NSO) has been the apex entity, managing the manpower and the expertise.
- Government agencies traditionally deferred to NSO for data collection efforts and data analytic expertise.
- The reliance and deference have clearly diminished. Public data agenda plays a large role for the changing landscape.

Public Data Agenda

“A data-driven approach refers to the systematic collection, management, analysis, interpretation and application of data.

Every government organization should ask itself: what data do, or might we possibly hold that could help us solve a problem?

It must be possible to combine data from different government organizations.

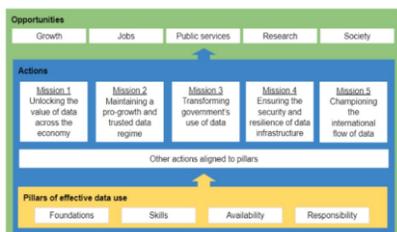
Analysis of these data must be carried out within the chains in which government tasks are organized.”

Data Agenda Government, the Netherlands

Public Data Agenda



Ireland



United Kingdom



United States



Canada

Singapore's Public Data Agenda

“Bringing Data into the Heart of Digital Government..”

“the Singapore public sector must harness data as a strategic asset”.

- Established a Government Data Office (GDO) to implement Data Strategy.
- Data Sharing by default: Core government data accessible within 7 days.
- Introduced Integrated Data Management Framework as part of Government Data Architecture (GDA).
- Whole-of-Government analytics platform, full deployment of AI.
- Civil servants to be trained in data science and to bring data into their work
- Data Science and Chief Data Officer Competency Framework for Civil Service

Attributes of Public Data Agenda

1. Data Integration and Platform Development
2. Maximizing Data Dividend
 - managing internal data resource as strategic priority
 - Data sharing within Whole-of-Government platforms
3. Problem Solving Focus
 - Data analytics for unique policy solutions
4. Episodic Orientation
 - Long term data maintenance or curation not priority
 - Often single-use applications
5. Narrow Product Range
 - Topical reports, not time series in nature

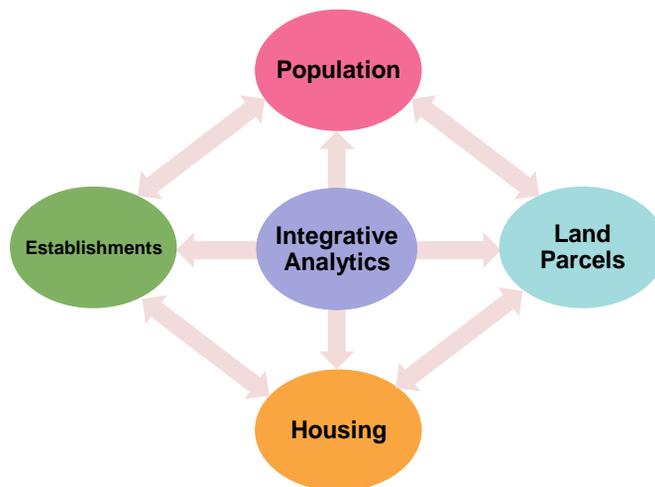
Will Public Data Agenda be Effective?

- Data analytics will be popular as internally problem solving and productivity tools.
- A Data Ecosystem will emerge, bring more data into use.
- Integration of data will happen at larger scale if privacy concerns are resolved.

But

- Episodic data deployment or analytic exercises will not help develop a system of high quality indicators carefully compiled over time.
- Institutionalization of statistical output may be haphazard.

My Job as Chief Statistician: Building an Integrated Data Eco-System



SGFinDex – Financial Data Integration



Retrieve your financial information from banks and MyInfo securely

- Provide consent to retrieve your personal data through SGFinDex
- SGFinDex passes encrypted data to the financial planning platform
- Financial planning platform decrypts and displays the data for you

National Electronic Medical Record System

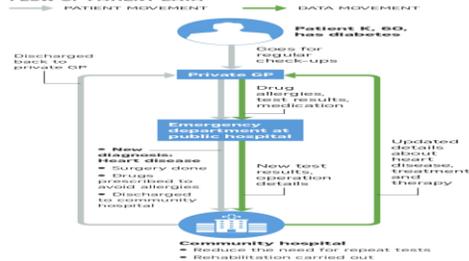


All healthcare practices roped into plan to put patients' medical history in electronic database (9-11-2017)

One patient, one health record

Here's how the healthcare system will be connected by the National Electronic Health Records (NEHR)

FLOW OF PATIENT DATA



PRIVATE HEALTHCARE GAP

There is a significant gap in distribution of health records from private healthcare institutions to achieve the vision of one patient, one health record for people's safety.

Types of healthcare providers	Total base	Institutions contributing to NEHR
Public		
Acute hospitals	0	0
National medical specialist centres	11	5
Polyclinics	19	19
Community hospitals	2	2
Residential care**	100+	10
Private		
Ambulatory***	4,000+	52
Private clinical laboratories	100+	0
TOTAL		133

NOTES: * Estimates as of Oct 2016
 ** Residential care, Private hospital, Nursing homes, Specialist centres
 *** Ambulatory, GPs, specialist, dental, screening providers, renal dialysis providers

TECHNICAL CAPABILITIES



133
INSTITUTIONS CONTRIBUTING TO NEHR



6m+
TOTAL PATIENT RECORDS



27TB
TOTAL DATABASE SIZE

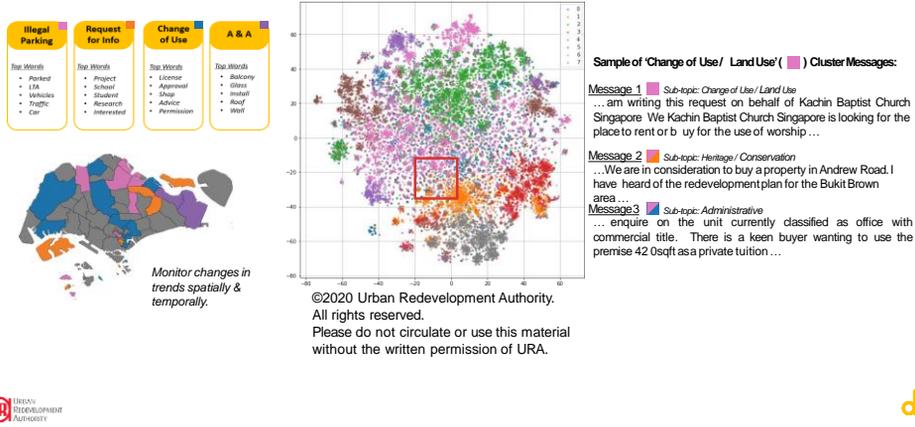
Source: INTEGRATED HEALTH INFORMATION SYSTEMS (IHIS) STRAITS TIMES GRAPHICS

Transforming Text to Data

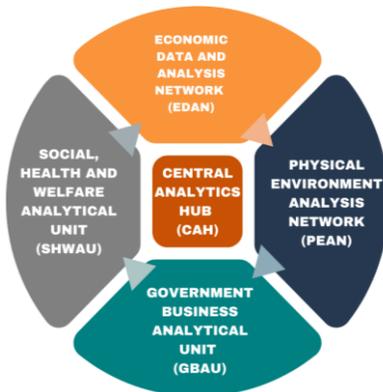
Leverage AI Technologies to convert large volumes of textual public feedback.

Extract Keywords to classify feedback by topics & associate them with 'issues of concern'.

Visualise and evaluate linkages (closeness) between different 'issues of concern'



Government Data Analytics



Australia Data Analytics Units

Deloitte Government Trends 2020

- 34% of Chief Data Officers use Predictive Modelling
- 200 success stories identified in Harvard Study
- 43% of government CIOs across 89 countries likely to increase technology investment in data analytics

Who Cares about NSS now?

- Ministries and their data scientists can do without statisticians.
- Reduced interest in 'traditional' official statistics. Ministries sometimes compete with NSO.
- Importance of NSO role diminishes over time. Its national role taken over by Chief Data Officer or Chief Data Steward.



Competing Price Data in Malaysia

	DOSM Price Collection for Consumer Price Index	KPDNKK Price Collection to Analyse Price Trend & Enforcement
Number of price items	530	15,754 (10,000 items provided by hypermarkets; 5,754 items collected manually)
Number of officers collecting data	Over 500 on-site officers	1,067 on-site officers all over Malaysia
Frequency of collecting data	- Weekly or monthly depending on items	Prices are collected daily on 114 staple food items.. Monthly for hypermarket items under Goods and Services Tax (GST)

Value of National Statistical System

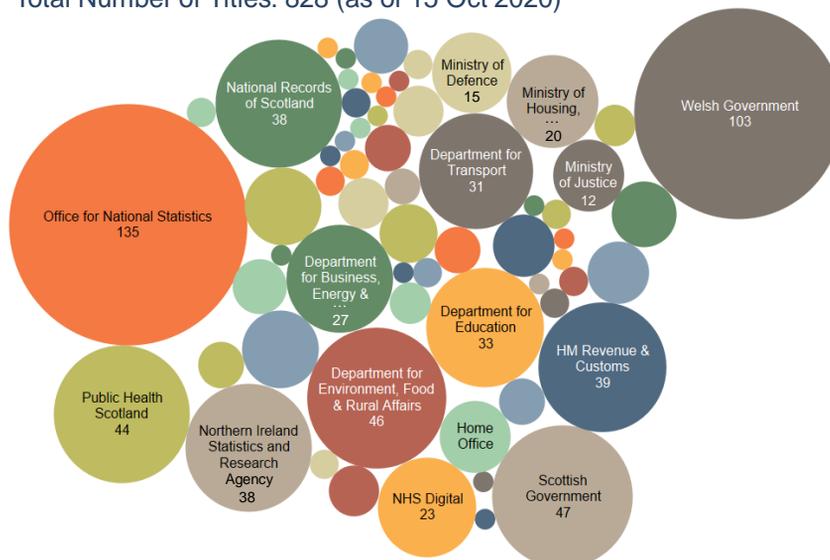
- The NSS is the ensemble of statistical units within a country that jointly collect, process and disseminate 'official statistics' on behalf of national government. (OECD)
- It is a loose system. Few countries clearly define 'official statistics' and provide comprehensive listing. In essence, it is an inventory of statistical indicators on important domains.
- The inventory of 'official statistics' serves as important benchmark for monitoring and assessment.
- WB's Data for Policy (D4P) recognizes the importance of Core Data essential for monitoring and evaluation development.

Governance of Statistical System

- No explicit governance arrangement in many countries.
- NSO often lack the mandate to govern the system of official statistics. Even with mandate, they face difficulties to exercise the authority.
- International Agencies such as IMF and UN playing a bigger role in promoting coherence of system.
 - IMF's SDDS provides a minimum inventory of official statistics
 - UN's Fundamental Principles provides backing to institutional practices. Used by countries to promote institutional legitimacy.
 - WB's Data for Policy (D4P)

UK Official Statistics Producer

Total Number of Titles: 828 (as of 15 Oct 2020)



Legal Mandate for Coordination

Singapore — Statistics Act (2012)

The Chief Statistician shall be the national statistical coordinator whose duties shall be: a) Coordinate statistical activities in public agencies.

Canada — Statistics Act (1985)

The Chief Statistician shall, under the direction of the Minister, Advise on matters pertaining to statistical programs of the departments and agencies.

Australian Bureau of Statistics (ABS) Act (1975)

To ensure co-ordination of the operations of official bodies in the collection, compilation and dissemination of statistics and related information”

United Kingdom Statistics and Registration Service Act (2007)

Promoting and safeguarding the production and publication of official statistics that serve the public good.

What UN taught me about NSS

- UN Statistical Commission is deemed as the apex entity of the global statistical system. Sets technical standards on the production of key official statistics.
- From 2004-2012, I helped raise the attendance from around 50 countries to 140 countries, giving it a global mandate.
- Yet, many country representatives unable to implement the standards required on official statistics. They come, they listen, and they do very little afterwards, for whatever reasons. They want to lead, but unable to do so.
- There are some fundamental constraints at the country level, especially among low- and middle-income countries.

Mindset of Monks and Farmers



“We should not worry about policies... we should do our work as accurately as possible”

“Our surveys are routinized, just like annual crops. Our jobs are repetitive, just like farmers”



Typical Issues Confronting NSS

Weak legal mandate, independence

Many NSOs suffer from weak legal mandate. They may be isolated and lacking support from “power” ministries that occasionally interfere to suppress unflattering information. Contentious environment with key stakeholders, lack of trust, overall poor image.

No effective stewardship of distributed system

Lack of coordination and uniform standards. Low statistical capacity in line ministries and at sub-national level. No organized data transmission program to facilitate flow of data from line ministries and sub-national unit to the NSO. Statisticians do not share identity as part of a larger system.

Critical gaps in organizational capabilities

NSO organized as traditional ‘stove-pipe’ enterprise. Staff poorly trained in the latest technology and in domain knowledge. No confidence as knowledge generators and in using latest methodological advancements. Lacking capability to inform public policy and business decisions.

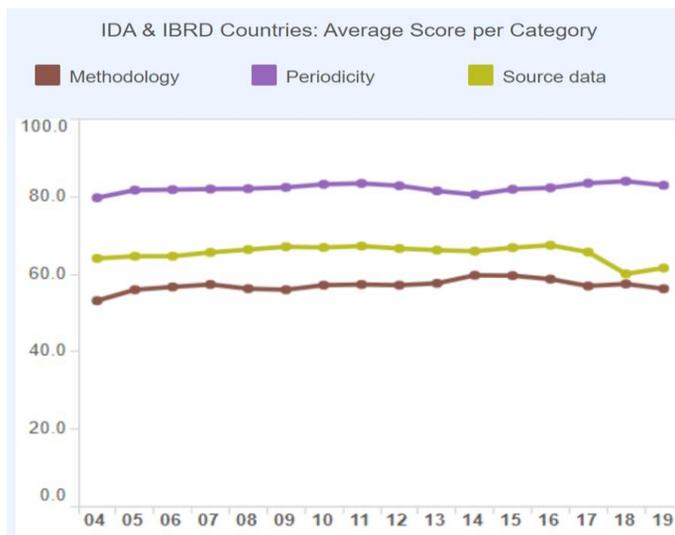
Deteriorating quality and relevance

Quality being questioned, perceived lack of competence. Competing sources of ‘truth’ emerging. Weak quality assurance mechanism. No structured user-feedback mechanism.

Outdated technology platform

NSO use of technology is poor. Over-reliance on physical data collection with low productivity, paralyzed by COVID-induced lockdown. Scant use of new data sources and no output database. Overall falling behind in acquisition of technology.

Performance of IDA NSOs



K-Shape Development in NSS

- Low- and Middle-income NSOs are struggling to maintain status quo. They are severely impacted by the pandemic.
- NSOs in high-income countries are leading the way to transform the system. They respond well to the COVID-19 challenge. Many have also embarked on a 'modernization' programme.
- The differential development path taking by the NSOs will lead to vastly different outcome. Consequently, the NSS will take very different shape between high-income and low-income countries.
- A dysfunctional system of official statistics must be avoided.

Transformative Core Values



UK Statistical Authority, 2020-2025



Statistics Canada, 2019-2022

StatCan Recognized the Challenge

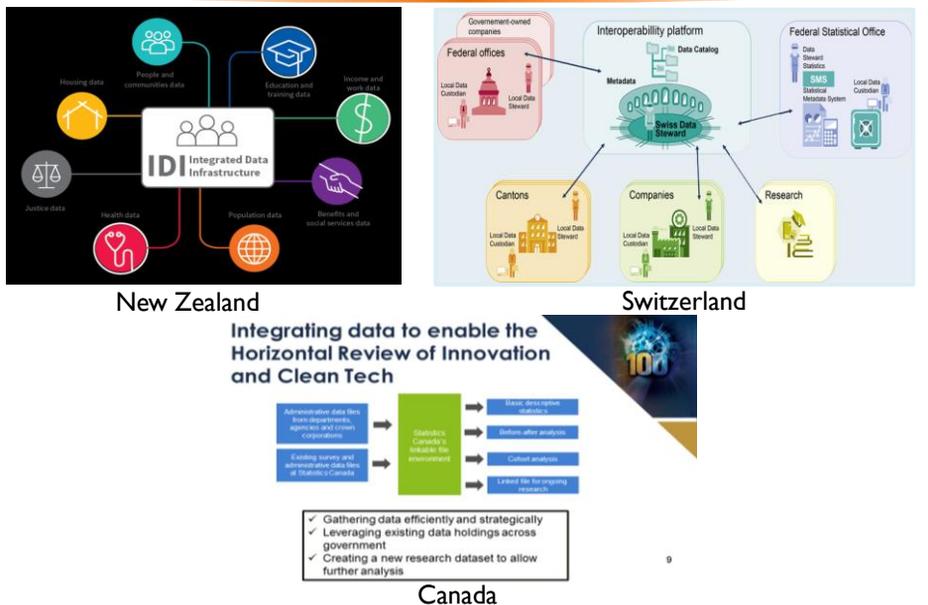
Statistics Canada started a huge modernization programme in 2017



From Official to National Statistics

- High-income countries have aggressively promoted official statistics:
 1. Two-Factor Authentication (2FA)
 - UK, upon further certification, upgrades some official statistics to become national statistics, reinforcing their importance.
 2. SDDS-Plus
 - Some 24 countries subscribed to SDDS-Plus which carries an expanded list of core indicators.
 3. New Products:
 - New databases on population and business
 4. National Conferences of Official Statistics Producers

NSO as National Data Steward



Delivering Insights

- StatCan's corporate vision:

Delivering Insight through data for a Better Canada

- Actively researching, developing, and implementing solutions to provide increased access to high-quality, relevant and timely information;
- To provide trusted data insights and standards;
- To decrease response burden and capitalize on existing administrative data (non-survey based);
- To use innovative data collection approaches, such as crowdsourcing;
- To expand and leverage innovative partnerships.

Data Insight from StatCan

Responding to rapidly evolving policy needs:

The Economist

January 11, 2018 print edition

StatCan has an especially tricky job. It has to estimate the contribution to the economy made by the production, distribution and sale of cannabis. To do that it must know what the cannabis economy looked like when lighting up was a crime. The last time Canada dealt with anything like this was in the 1920s, when prohibition ended and the Dominion Bureau of Statistics kept the national accounts.

Canadian government aims to flush out marijuana usage stats with wastewater study

By Stephanie Scott, National Science Foundation, Pottery, Global Warming



StatCannabis

Measuring Canada's cannabis economy

Recreational pot will soon be legal. Statisticians have to figure out how much it contributes to output

8

Statistics Canada / Statistique Canada

www.statcan.gc.ca

Canada

United Kingdom's Response

FINANCIAL TIMES

WORLD US COMPANIES MARKETS OPINION WORK & CAREERS LIFE & ARTS

ONS 'unicorn' campus reimagines how to measure Britain

Statisticians experiment with using Google Street View, shipping data and VAT returns

The Data Science Campus in Newport © Gareth Isvan Jones/FT

New projects:

- Using VAT to smooth GDP
- Automatic identification systems
- Google street views
- Wifi connections
- Collaboration with agencies and private sector



ONS Research Centres

The Office for National Statistics (ONS) Centres focus on filling evidence gaps and producing incisive analysis that illuminates the key policy challenges of the age. Each Centre focuses on a key policy area.

The five ONS centres are:

- [Centre for Ageing and Demography](#) - providing statistics and analysis on the UK's changing population
- [Centre for Crime and Justice](#) - improving the understanding of the nature of crime
- [Centre for Equalities and Inclusion](#) - addressing questions about fairness and equality in society
- [Centre for International Migration](#) - understanding migration's significance in our population and economy
- [Centre for Subnational Analysis](#) - to help local areas design their own policies

Improving Partnership

- Working closely with partners has been identified by many NSOs as important.
- Statistics Netherlands (CBS), for example, hosted its second Big Data Matters seminar in Sept 2019, with over 200 people representing government organisations, educational institutions and businesses.
- CBS underlined the importance of collaboration. Wants to develop a data ecosystem in order to cater to the data needs of government stakeholders even more effectively.



Critical Tasks for Low-Income Countries to Improve NSS

1. Political Commitment
2. Institutional Reorganization
3. Mandate/Leadership Renewal
4. Productivity/Technology Enhancement
5. Generating Knowledge

1. Political Commitment

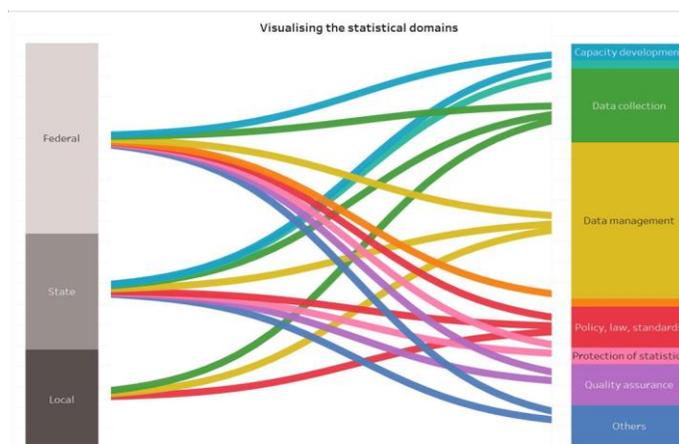
- There must be political commitment to a system of official statistics. This commitment is expressed through:
 - Appropriate mandate and political endorsement
 - Provisional of adequate resources
 - Evidence-based policy making
- World Bank and IMF have critical role to play in securing this political commitment.
 - WB's financial support
 - IMF's Article IV consultation

2. Institutional Reorganization

- Many low-income countries do not have a systematic, organized representation of the system of official statistics. System managed on ad hoc basis.
- A coordinating entity should be identified and appropriately empowered.
- Example: Philippine Statistics Authority emerged in 2013 by bringing together disparate entities under one roof.
 - Manages a system of Designated Statistics – 58 designated activities including 4 census, 21 surveys, 24 administrative and derived data systems, and 9 statistical indicator clusters. 19 agencies on SDS list.

Nepal's Statistical System

Figure 1 Constitutional responsibility around data and statistics



Source: World Bank staff visualization based on the Unbundling Report (cite)

3. Mandate/Leadership Renewal

- Appropriate mandate for NSO to act as the apex entity in the NSS is critical. Governments should stipulate NSO as the National Coordinator for Official Statistics and provides it with legislated mandate.
- Strong leadership is required to execute the mandate. Governments should consider this a senior appointment with appropriate rank.
- Leadership is critical in determining the viability of the organization.

4. Productivity/Technology Advances

- Productivity has been a persistent problem for NSOs. Surveys are slow to produce results. Administrative data are hindered by manual compilations.
- Methodological advances have been made through the adoption of multi-modal data capture, OCR, and software improvements.
- The injection of technological advances is the single most important factor to raise productivity. But this has proved to be the most difficult for various reasons.

Multi-Model Data Capture

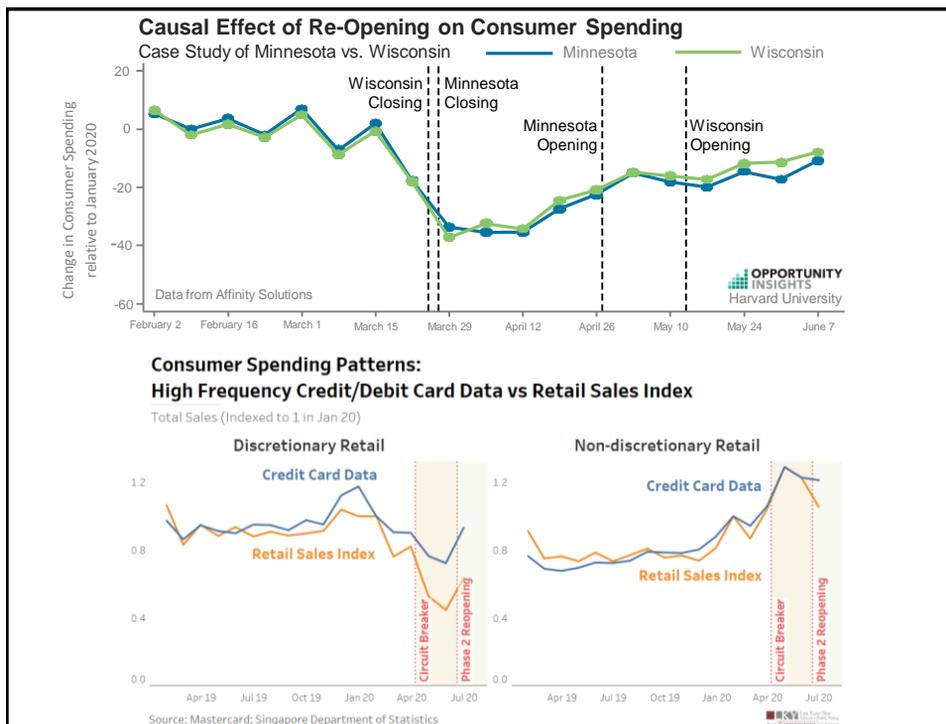


WB's COVID-19 Data Initiative

- Unprecedented phone surveys in over 100 countries to obtain real-time information on the socioeconomic impacts of the pandemic;
- Demonstration effect on countries that rapid data collection system is feasible.
- Countries should adopt advanced technology platform for generation of official statistics.

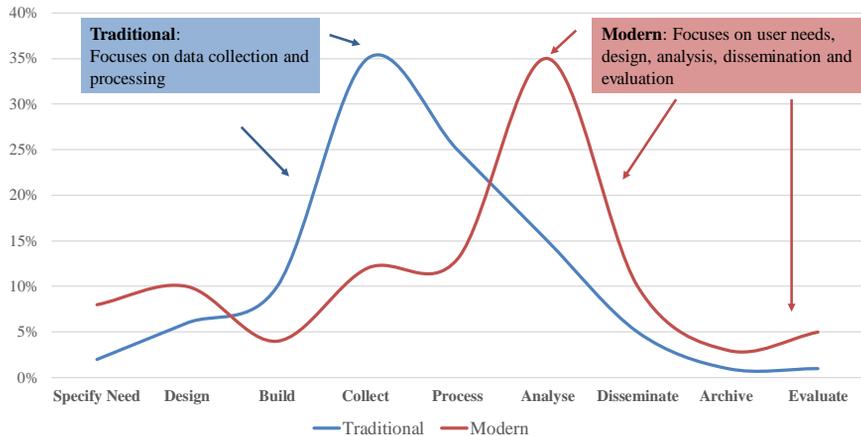
5. Generating Knowledge

- The system of official statistics is very rich. Compiling and managing the system must be the first step.
- The value chain of producing insights through analysis of official statistics must be promoted. This will help further strengthen the position of the system of Official Statistics.
- Example: Oman National Center for Statistics and Information combines statistics with geospatial information for various analysis. Latest report on Traffic Systems released on 9 Dec 2020.
- Example: WB's Global Phone Surveys delivered interesting insights for countries through 63 indicators.



Automate Routine Tasks and Move Efforts up the Value Chain

Relative effort in each stage of statistical production
Traditional vs. Modern Statistical Organization



Going Forward

- Public Data Agenda must help preserve and strengthen a national system of official statistics.
- Complementarity is key, not competition.
- NSOs must strive to be the champion of this system, ensuring its high quality and trustworthiness.
- Data stewardship is a strong pillar for NSO but only for those who have the pre-requisites.
- Gaining relevance through knowledge generation a key priority.