Government of the Republic of Trinidad and Tobago
MINISTRY OF FINANCE

Keynote Address by the Honorable Colm Imbert, MP, Minister of Finance, Government of Trinidad and Tobago

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Speech Theme: "Using big data to drive meaningful change in T&T"

Good morning, ladies and gentlemen.

It is my pleasure to share some thoughts with you on the Transformational Role of Big Data Technologies and Analytics for the Government and to highlight some of the work that the Ministry of Finance is doing in pursuit of our agenda to transform Trinidad & Tobago into a digital nation.

There is no gainsaying the fact that the unprecedented disruption caused by the COVID-19 pandemic has accelerated the need for digital transformation. Economic systems, industry structures and business models have been upended, highlighting social inequalities, governance issues and the frailty of life itself. In fact, the pandemic showed us how interdependent we are, how reliant we are on technology, and how critical and useful data is to our everyday life. The pandemic has significantly increased data consumption

and applications in many ways, with businesses seeing increased engagement from existing customers and an influx of new digital customers. This shift to a more digital economy has also enabled the public sector to accumulate large volumes of data. Big Data is a concept that has emerged in recent times and encapsulates a new global development and sustainability paradigm. It refers to data that is so large, fast and complex that it is difficult to process using traditional methods

It involves extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions. It includes the vast amount of information passively collected from everyday interactions with government departments, digital products or services, including mobile phones, credit cards, GPS devices, and social media.

Big data can be characterized using what many data scientists and analytics refer to as the ‘5Vs’.

1. Volume—the size of the dataset—has to be large. ‘Large’ being relative and ever-increasing.
2. Velocity—refers to how quickly data is generated, collected and analyzed. It is ideal that data is captured as close to real-time as possible.
3. Variety—refers to the diverse data types collected from varied data sources. Datasets with wider variety now lead to richer insights.
4. Veracity—refers to the quality of the data: is it ‘clean’ and accurate. This gives the assurance that you can trust the data you have

collected, and you comfortably begin to base your decisions on the insights garnered from this data.

5. Value— this is a critical component because the aggregation of data does not necessarily translate to value. What matters most is how you use the information you have collected and what meaningful insights can be extracted and applied to positively impact your decision-making process.

According to a recent UN report, 64.2 zettabytes of data were created in 2020, representing a 314 per cent increase from 2015. A zettabyte is a trillion gigabytes, and I can actually remember a time when one gigabyte was considered large. This means that data is now being created and used at an exponential rate!

In our ever-changing world, the focus is shifting from the quantity of data to appreciating the value of data. Big Data is an untapped resource and is the lifeblood of decision–making and the raw material for accountability. It is now the currency of the technological economy and is incorporated into every sector- from manufacturing, banking and agriculture to disaster risk reduction, urban management and biodiversity monitoring.

Many countries have come to regard Big Data as a growth engine for the future and a solution to existing economic and social problems. It has enormous potential in the public sector and governments worldwide have announced comprehensive strategies for using Big Data at the national level. Information that is readily available in real-time enables government agencies and departments to easily identify areas in need of attention. More

diverse, integrated, timely and trustworthy information now lead to better decision-making and real-time citizen feedback. The provision of the right information on the right things at the right time enables public and private institutions, individuals, and companies to make the right choices that are good for them and for the world they live in.

Governments are also exploring ways to systematically use big data collected by the financial sector to understand the needs and nuances of institutions and elements operating a financial system and how this system fits into the wider economy. These innovative approaches can help identify development needs, provide early–warning signals on potential emergencies or crises, plan, implement and evaluate national development programmes.

Advances in computing and data science now make it possible to process and analyze Big Data in real time to provide information that would have been unimaginable just a few years ago.

Governments across the globe are also focusing on analysing Big Data to modernise services and improve their economies.

In April 2020, the Chinese government indicated its intent to recognise data as a “new factor of production”, stating that “data is now listed as one of the factors alongside traditional factors such as land, labour, capital, and technology.” The Chinese Government has also launched an “Internet+” policy to use big data to help develop the economy. Internet+ is designed to improve the efficiency of the market and to assist in building a planned economy. China is utilising big data for taxation in many ways. China’s tax

administration system makes extensive use of big data solutions that use multi- and cross-referencing to verify business information.

Other examples include:

- India’s established open government data platform which provides public data to analysts, researchers and practitioners.
- The Republic of Korea is leading public big data applications for transportation planning at the city level, monitoring of infectious disease, manufacturing process analysis, and business engagement.
- Ireland created a Joint Industry/Government Task Force to drive the development of big data in the country.

STRIKING THE RIGHT BALANCE

The GoRTT recognises all the advantages that can be gained by the effective use of data to inform decision-making. Ensuring sustainable development calls for innovative ideas utilizing new and multiple sources of data for more effective economic and financial modelling.

Big Data Analytics is thus an intelligent solution which allows governments to make better decisions and inform their development plans. The process gives us the ability to access data — to examine it, to be able to understand it, to process it, to extract value from it.

Big data has enormous potential in the public sector. The Government's engagement with citizens, such as managing and distributing social benefits, collecting taxes, monitoring the national health and education systems,

recording traffic data, and issuing official documents, generates and collects vast amounts of data each day. Information that is readily available in real-time enables government agencies and departments to make more informed decisions, improve their services and take appropriate action quickly.

Big data is key to improving the delivery of service. For example, while our national census can identify where vulnerable populations reside, the additional knowledge provided by big data analytics, especially mobile data, allows us to develop high quality demographics to support the delivery of targeted services to these vulnerable groups.

Predictive healthcare analytics can be used to guide the distribution of medical equipment, medications, personnel. Predictive modelling can be used to generate updated coronavirus spread maps, so the public can see which regions are expected to see a rise in COVID-19 infection cases. These predictive mapping technologies may also be used to position healthcare workers, supplies, field hospitals and other resources, in the locations with the greatest need.

These models can be quite diverse, from exploring people's reactions to the virus on social media to generating data-driven models to evaluate COVID-19 interventions, tracking bed capacity at hospitals, and working on virus genome sequencing to evaluate what we know about the virus.

As Minister of Finance in the annual National Budget exercise, I rely on a lot of data to guide us as we project Revenue for the coming year. In particular,

Big Data is the foundation for estimating oil and gas prices and production, which are essential elements of our budget process.

Data is also a critical part of our ICT Plan, and we are ensuring that the fundamental principles of this plan are embraced and practiced throughout its operations. Some of these principles that we are focused on are

- The principle of Data Centricity: Manage data as an asset and share data to provide added value to services and operations.
- Reliability and Assurance: Gain confidence and trust of citizens/customers with reliable and secure digital services.
- Transparency: Data, information, processes and decisions on the Information Society must be public and be made understandable without prejudice to any stakeholder

To ensure that the financial sector can harness the benefits of modern technologies, it must focus on standardizing its approaches to reporting, collecting, and analysing data; introducing and supporting legislation that promotes an enabling environment and embracing technology like Artificial Intelligence and Machine Learning which will present additional avenues for learning and decision making.

A key strategy of the MOF is to utilize agencies like the Trinidad and Tobago International Financial Center to drive change within the public sector. We have thus given the TTIFC a revised mandate as the Lead Agency of the Ministry of Finance for digitalization initiatives within the Financial Services Sector and we our goal of becoming a Cashless Society.

One of the strategic objectives that the TTIFC has been asked to focus on is the rapid digitalization of payments in the public sector.

This will allow for greater data transparency with revenue collection. It can lead to improvement in Public Financial Management and the recording and publishing of fiscal data. Big Data analytics in the public sector will allow us to identify double payments and double dipping, so as to eliminate waste and duplication.

Digitalization of government payments will also promote fiscal discipline, assist resource allocation, and improve operational efficiency and transparency. A central database with a real-time record will enable the government to plan, execute, and monitor its revenues and expenditures to facilitate more effective management of fiscal accounts at the level of both the Central and Local Governments.

An example of how big data can be used to support this process is in the Inland Revenue Division, which is the principal tax collection agency for the Government of Trinidad and Tobago, accounting for over seventy-five per cent (75%) of the Government's revenue from all sources. At present, the Government is seeking to enable multiple forms of electronic funds transfer for both the convenience of the taxpayer and to aid greater efficiency for the Inland Revenue Division.

The Inland Revenue Division accepts payments for twenty-four (24) distinct types of taxes with varying amounts across each. Through the cross-referencing of the Inland Revenue's data as well as other external data sources such as commercial banks, companies and land registries, our motor vehicle licensing division and so on, the Inland Revenue Division would be able to develop better profiles for taxpayers and identify "patterns of interest" to aid the division in compliance.

TRANSLATING AMBITION INTO ACTION

As you would have noted from my recent 2022 budget statement, the government is mindful of the urgency of digital transformation. In that statement I listed several initiatives that are focused on enhancing ICT and digital transformation and the collection of and use of Data Analytics to drive informed decision making, such as.

- Increasing ICT access and closing the digital divide.

    - This is being driven by the Government's investment in education and technology infrastructure.
    - We have introduced TT Wi-Fi which will continue to provide free broadband access in highly populated and frequented areas such as transport hubs, hospital waiting rooms, libraries, and schools.
    - ICT Access Centres are to be increased from 6 to 50 in digitally underserved communities.

- Digital Skills Training will be provided for 10,000 persons, followed by another 2,000 under the Microsoft Philanthropic Group arrangement.
- Broadband service will be provided in at least 25 underserved communities.

The potential for big data to transform government is vast. Digital transformation activities are occurring in all ministries at various levels. Some examples of these are:

- The Ministry of Digital Transformation is focused on implementing its Digital Transformation Programme, which commences in fiscal 2022. This will encompass three new programmes: Digital Society Programme, Digital Economy Programme and Digital Government Programme. Collectively these programmes aim to improve the Information Technology Infrastructure of the Public Service. The development and future introduction of a digital identity for all citizens and residents for shared use by all sectors and the expansion of Cloud-based services can also allow for the design of tailor-made services that cater to the specific needs of the individual.

- The Ministry of Education will also embark on a digital transformation programme to facilitate digital fluency at all levels in the education system and among all stakeholders.

- The Ministry of Planning and Development is also transforming the Central Statical Office (CSO). This will allow for accurate and up-to-

date information from one central source. Data is a valuable tool for planning and allocation of resources. The adoption of Big Data technologies will thus allow for the real-time publication of economic and financial data.

Statistical agencies such as the CSO face multiple challenges in the present environment. Traditional methods of collecting data—whether asking businesses or individuals to complete surveys, gathering price data by sending enumerators to stores—face increasing challenges. Big data will not offer all the answers and cannot replace official statistics, but it does offer the potential, however, to fill in missing gaps and create cost and human resource efficiencies. Big data can be a complement to existing forms of data and traditional official statistics in order to bolster evidence-based policymaking.

- The Ministry of Agriculture, Lands and Fisheries began its investment in Geographic Information Systems (GIS) Unit in late 2011 with the conversion of the organization's paper-based filing system to a multi-layered GIS dataset. The GIS unit focuses on the production and distribution of meaningful geospatial datasets, paper maps and interactive mapping applications for Ministry departments to see, analyze, and understand patterns and relationships more easily.

  The Ministry will also be exploring Smart Agriculture Programmes with a focus on Artificial Intelligence. This will explore the incorporation of the use of Information Communication Technology in agriculture with Artificial Intelligence-driven systems to expand agriculture databases

that will inform decision making for better harvesting and improved environmental conditions.

- Big data is being utilized through the Ministry of Health's geospatial applications to identify the location of people with mosquito borne and airborne viruses to seek to contain outbreaks in communities. The Ministry of Health has also embarked on an initiative to implement a Health Information System (HIS) for the newly constructed Arima and Point Fortin General Hospitals with the intention of expanding the HIS to the other hospitals in Trinidad and Tobago. The HIS is envisioned to play a key role in providing a centralised repository for all patient records building on the concept of "one patient one record," improving the efficiency and productivity of operations in the management at these hospitals, improving the decision-making processes as well as reporting capabilities based on data collected and improve the overall management and service delivery within the hospitals.

- The Town and Country Planning Division (TCPD) of the Ministry of Planning and Development has also made major progress in the Digitization of Town and Country physical records. This provides for better access to and analysis of data sets to allow for easy incorporation into the automated construction permitting system.

- The Office of the Prime Minister, Cabinet secretariat has managed its own big data project with the design and deployment of an enterprise content management system. This is one of the largest document repositories within the Government, with over ten (10) million pages of

scanned data to date and the capacity to store one (1) quadrillion documents.

- The Ministry of Social Development and Family Services has also embarked on implementing an Integrated Social Enterprise Management Solution (ISEMS). As the key social sector Ministry responsible for coordinating the implementation of the Government's social development objectives, the Ministry ensures the efficient and effective functioning of the sector by providing a network of integrated and accessible social programs and services. Big data use can add depth of information on human behaviours and experiences. It can also be instrumental in highlighting nefarious elements within the system. This is critical because we must ensure that the people who need help are the ones who receive it.

  The ISEMS system, through the efficient use of data, is expected to incur the following benefits, to name a few:

  - Providing timely assistance to persons who are deemed to be in need
  - Value for money
  - Transparency and accountability in the administration of state resources
  - Efficiency and effectiveness
  - High-quality customer care
  - Positive financial, operational and stakeholder impacts

Additionally, the Government has recently agreed to subscribe fully to the IMF Enhanced General Data Dissemination System, which supports improved data transparency, encourages statistical development, and, very importantly, helps create synergies between data dissemination and policymaking.

The ubiquity of the use of new technological developments such as FinTech, Distributed Ledger Technologies including Blockchain and Artificial Intelligence in trade, commerce and the public sector requires a revision of the legal and regulatory frameworks. As part of the Government's focus on digital transformation as a key pillar for national development, we will be actively removing any legislative barriers or hindrances to innovation or proper adoption of such technologies in Trinidad and Tobago.

Among these key considerations is also data protection. It is essential that any big data ecosystem also includes measures to prevent abuse. Users' rights will remain at the forefront of any policy governing big data. The Government will therefore engage in legislative review to ensure instances of potential for abuse, such as the case whereby political consulting firm Cambridge Analytica was found to have misused individual electronic data for the purposes of interfering with the electoral process of various countries.

We have set before us an aggressive agenda to ensure that Trinidad & Tobago does not get left behind but that we are positioned to lead the region in technology. I would like to assure the public that the government is committed to ensuring that all of these projects will come to fruition. Trinidad and Tobago has the capacity to harness all the potential of big data, owing

to modern telecommunications infrastructure, state of the art Tier 3 data centres, 100% mobile-cellular network coverage for the population (2020), high

- Mobile penetration of 142% (2020),
- Internet penetration of 77% with over 1 million internet users,
- And a highly qualified talent pool to propel data analytics.

I cannot close without extending my congratulations to the United Nations for its success in hosting the second iteration of the United Nations Trinidad & Tobago Big Data Forum. In 2020, your organisation stated that Trinidad and Tobago is well-poised to be the home for a Centre of Excellence on Big Data Analytics. As you have heard, the Government is hard at work to make that statement a possibility. We recognize that “Data is our new Oil”!

I would also like to commend your partnership with the Central Statistical Office. Your work with the CSO resulted in the creation of new baselines and indicators identified for creating a richer data pool that will track the country’s progress on the SDGs.

We look forward to hearing more collaborations like these in the future.