INTERNATIONAL SYMPOSIUM ON AI AND DATA SCIENCE FOR ECONOMIC



How Digital Evolution Impacts Economic Decision-Making











International Symposium on AI and Data Science for Economic Statistics: How Digital Evolution Impacts Economic Decision-Making 20 January 2025, Dubai, United Arab Emirates

Agenda

			1			
	8:30	REGISTRATION & COFFEE	10:25	COFFEE BREAK		
	9:00	Welcome Speech by FCSC Mohammad Hassan – Executive Director Statistics and Data Science Sector - FCSC	10:45	Presentation: "Innovation Work in the Data Science <u>Campus :</u> Data Science and AI" Osama Rahman – Director of Data Science Campus at Office for National Statistics (UK)		
/	9:10	Video by United Nations Stefan Schweinfest - Director of the Statistics Division	11.10	Presentation: "Shifting the Lens: Discovering New Dimensions of Data"		
	9:15	UN Pact for the Future and the Digital Transformation of Economic Statistics Dr Ronald Jansen - Asst Director of the Statistics Division		Brecentetion: "Crem Mana to Matrice: Llow CEOALia Dedefining Statistical Insideta"		
	9:45	Keynote: "Al Pipelines from Data to Insights" Dr Abdelrahman Al Mahmoud – Head of Research & Infrastructure, Al Office UAE	11:45	Kate Hess – Senior Solutions Engineer at ESRI		
d	10:15	Group picture	12:15	Presentation: "Future of Data Strategy for Decision Making – Data Science and AI" Mohammad Hassan – Executive Director Statistics and Data Science Sector - FCSC		

12:30	LUNCH				
The Future of Statistics					
13.15	Panel discussion "How Big Data and Innovation Hubs support national statistical systems"				
10.40	Moderator: Mr. Osama Rahman, Director of the Data Science Campus, ONS UK Panelists:				
	– Mr. Ivan Murenzi, Chief Statistician, NISR, Rwanda				
	 Prof. Setia Pramana, Director of Regional Hub in Indonesia 				
	 Ms. Maria Luiza Torres, ENCE/IBGE, Team Lead of Regional Hub in Brazil 				
	 Dr. Babatunde Samson Omotosho, Director, Statistics Department, AfDB Mr. Marco Marini, Head of IMF Big Data Center 				
14:55	Tea Break				
15:15	Panel discussion on "AI and Data Science for Economic Statistics in the MENA region"				
	Moderator: Dr Ronald Jansen – Asst Director UN Statistics Division Panelists:				
	– Ms Wafa Aboul Hosn - ESCAW				
	 Mr Mohammad Al Ghafri – Head of Producer Price Statistics - Oman 				
	 Ms Elham Saleh – Technical Support Advisor - GCC-STAT 				
16:15	Networking				

Welcome and Opening Remarks

Mohammad Hassan

Executive Director of Statistics and Data Science Sector Federal Competitiveness and Statistics Centre (UAE)



United Nations - Video

https://www.youtube.com/watch?v=aCYBsJH18Xc

Stefan Schweinfest

Director

United Nations Statistics Division



UN Pact for the Future and the Digital Transformation of Economic Statistics

Dr Ronald Jansen

Asst Director

United Nations Statistics Division



Summit of the Future

UN Pact for the Future – overview

Global Digital Compact

- Digital Connectivity
- Digital Economy
- Safe Digital Space
- Data Governance
- Al Governance

Digital Transformation and the UN Statistical Commission

New York, 2024

Summit of the Future

20-21 September – Action Days 22-23 September – Summit



Outcome document: Pact for the Future

World leaders adopt a <u>Pact for the Future</u> that includes a Global Digital Compact and a Declaration on Future Generations (A/RES/79/1). The Pact covers a broad range of themes, including peace and security, sustainable development, climate change, digital cooperation, human rights, gender, youth and future generations, and the transformation of global governance.



2022-2024 Summit of the Future

11 Policy Briefs

- Safeguarding the future
- 2 Managing global shocks
- 3 Meaningful youth engagement
- 4 Beyond GDP
- 5 Global digital compact
- Integrity in Information
- International financial architecture
- Sharing the benefits of space
- A new agenda for peace
- Transforming education
- United Nations 2.0
- **5 Pact Chapters**
- Sustainable development and financing for development
- 2 International peace and security
- Science, technology and innovation and digital cooperation
- 4 Youth and future generations
- 5 Transforming global governance



2020 UN75 Declaration



2021 Our Common Agenda (OCA)



 2022 Modalities Resolution 76/307



5 Pact Chapters

5

- Sustainable development and financing for development
- 2 International peace and security
- Science, technology and innovation and digital cooperation
- 4 Youth and future generations
 - Transforming global governance

PACT SUB-ACTIONS BY ACTOR MOST RESPONSIBLE FOR IMPLEMENTATION

Of the 363 subactions in the Pact, 291 are the primary responsibility of Member States

Category of Actors	Sustainable Development and Financing for Development	International Peace and Security	STI and Digital Cooperation	Youth and Future Generations	Transforming Global Governance	Follow-up and Review Mechanisms	Total
Member States	62	63	87	25	49	5	291
SG & UN System	0	10	8	7	11	9	44
IFIs	0	0	0	0	14	0	14
Stakeholders	0	0	13	0	1	0	14
Total	62	73	108	32	75	14	363

12

ACTION 53. WE WILL DEVELOP A FRAME-WORK ON MEASURES OF PROGRESS ON SUSTAINABLE DEVELOPMENT TO COM-PLEMENT AND GO BEYOND GROSS DO-MESTIC PRODUCT.

We recognize that sustainable development must be pursued in a balanced and integrated manner. We reaffirm the need to urgently develop measures of progress on sustainable development that complement or go beyond gross domestic product. These measures should reflect progress on the economic, social and environmental dimensions of sustainable development, including in the consideration of informing access to development finance and technical cooperation. We decide to:

Request the Secretary-General to estab-(a) lish an independent high-level expert group to develop recommendations for a limited number of country-owned and universally applicable indicators of sustainable development that complement and go beyond gross domestic product, in close consultation with Member States and relevant stakeholders, taking into account the work of the Statistical Commission, building on the global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development and to present the outcome of its work during the eightieth session of the General Assembly;



Global Digital Compact An open, safe and secure digital future for all.



Join the Compact

Turning the Global Digital Compact into action requires a global effort. Thousands of people and organizations contributed to the elaboration of the Compact.

Read the full Global
Digital Compact (EN)

Explanatory Note of the Endorsement Process

loin us in this effort

Global Digital Compact





The goal is an inclusive, open, sustainable, fair, safe and secure digital future for all. This Global Digital Compact sets out the principles, objectives, commitments and actions to achieve it.

Global Digital Compact: Objectives

- Close all digital divides and accelerate progress across the Sustainable Development Goals;
- Expand inclusion in and benefits from the digital economy for all;
- Foster an inclusive, open, safe and secure digital space that respects, protects and promote human rights;
- Advance responsible, equitable and interoperable data governance approaches;
- Enhance international governance of artificial intelligence for the benefit of humanity.

GDC Objective 1: Digital connectivity

We commit, by 2030, to:

(a) Develop and strengthen targets, indicators and metrics for **universal meaningful and affordable connectivity**, building on existing work, and integrate these into international, regional and national development strategies (SDG 9);

(b) Develop innovative and blended financing mechanisms and incentives, including in collaboration with Governments, multilateral development banks, relevant international organizations and the private sector, to connect the remaining 2.6 billion people to the Internet and to improve the quality and affordability of connectivity. We will aim for entry-level broadband subscription costs that are accessible to the widest section of the population (SDGs 1 and 9);

PRIORITY ISSUES – G20 Brazil Presidency

1. DIGITAL INCLUSION, UNIVERSAL AND MEANINGFUL CONNECTIVITY

Despite the growing access to digital connectivity, a significant proportion of the world population remains unconnected. Even among many G20 members, the challenge of connecting populations living in rural and remote areas remains very much relevant, as well as providing digital skills to a part of the population that is not online, despite living in areas where Internet access is available.

2. DIGITAL GOVERNMENT: BUILDING A TRUSTWORTHY AND INCLUSIVE DIGITAL PUBLIC INFRASTRUCTURE

In the past decade, especially during and immediately after the COVID-19 pandemic, numerous national and subnational governments have devoted efforts to adapt the delivery of public services to the new needs and expectations of societies increasingly influenced by the advancement of new digital technologies. Enhancing the government's relationship with its citizens, providing high-quality public services, and leveraging the opportunities of the digital economy, in turn, require a smart public administration and a secure, reliable, and inclusive Digital Public Infrastructure (DPI).

GDC Objective 2: Digital Economy

We commit by, 2030, to:

(a) Foster an open, fair, inclusive and non-discriminatory digital environment for all that **enables micro-, small and mediumsized enterprises to access and compete in the digital economy** (SDG 9);

(b) Support international, regional and national efforts to develop enabling environments for digital transformation, including predictable and transparent policy, legal and regulatory frameworks, and sharing of best practices (SDGs 10 and 16);

(c) Conduct national and regional assessments to inform actions to address gaps and needs in digital transformation and strengthen the collection and use of data to inform decisionmaking (all SDGs);

Digital intermediary platforms

- Sales through online platforms are booming
- The platform landscape is dominated by a small number of platforms
 - 6 platforms facilitate over \$100bn of transactions in 2021
 - Together they account for 80% of the total transaction value
 - 4 out of these 6 are Chinese
- It is crucial to obtain high quality information from these DIPs
 - Please note that 3 out of the 3 Chinese DIPs did not publish their transaction value for 2022

Transactions through digital intermediation platforms, 2019–2022 Gross Merchandise Value of goods / Gross Transaction Value of services reported by DIP operators

Source: UNCTAD (2024) "Business e-commerce sales and the role of Takealot group Yandex online platforms"; based on published reports by platform operators. Swiaa Notes: Values as reported in company annual reports or official filings. Reporting periods vary. * for Alibaba, Pinduoduo, Meituan, and Goje B2B/Americanas figures for 2022 are unavailable. Their 2021 figures Cnova Hepsiburada are used when calculating the total; the true total for 2022 could be Ozon higher or lower. For more information, see source. ifood B2W/Americanas (2022 n/a) Deliveroo Tokopedia Zalando Walmart internationa Mercado Libre 4 218 VIP.com US\$ billions Just Eat Takeaway 4 0 2 0 Delivery Hero 4 000 Rakuter AirBnB Walmart US Shopee Expédia **Booking Holdings** Uber (incl. eats 3 165 Meituan (2022 n/a) Shopif 3 000 Pinduoduo (2022 n/a)* 2 578 id.com 2 000 Amazon 1 000 Alibaba ecosystem (2022 n/a)*



电子商务平台交易情况(U201) Survey on E-commerce Platform transaction

U201表	主要内容 Contents		
统计范围 Scopes of Statistics	规模以上工业、有资质的建筑业、限额以上批发和零售业、限额以上住宿和餐饮业、有 开发经营活动的房地产开发经营业、规模以上服务业法人单位拥有的电子商务交易平台, 以及年交易额1000万元及以上的其他电子商务交易平台。 E-commerce Platforms(including EDI system) owned by the enterprises above designated size and the E-commerce platforms with yearly transaction volume above 10 million CNY owned by the enterprises below designated size		
调查频率 Frequency of Statistics	月度调查 Monthly survey		
调查数量 Quantity of Respondents	2023年,4000多家电子商务平台tsMore than 4000 E-commerce Platforms in 2023		
调查方式 Data Collection Methods电子商务交易平台通过联网直报平台填报问卷 Respondents complete questionnaires through online system			
主要调查指标 Indicators of Statistics	平台交易额 (含增值税) E-commerce Transaction Value (which includes VAT) 按交易对象分平台交易额-对单位 (B2B+B2G)和对个人 (B2C+C2C) Breakdowns by actors, such as B2B+B2G and B2C+C2C 按交易的商品类别、服务类别分平台交易额 Breakdowns by transaction content, such as goods and services 按卖方所在地分平台交易额 Breakdowns by seller's registered province		

Industries ('who')

Additional columns to represent the new digital industries:

nal	The digitally enabling industry (e.g., Samsung)				
s to	DIPs charging a fee (e.g., Amazon; Uber, Lyft)				
nt	Data- and advertising-driven digital platforms (e.g., Google, Instagram)				
/	Producers dependent on DIPs				
es:	E-tailers				
	Financial service providers predominantly operating digitally				
	Other producers only operating digitally (e.g., Netflix, YouTube)				



Example: Canada - Industries

Statistics Canada updated and published their estimates in 2023:

- Covers the period from 2017 to 2020
- Contribution of digital industries/ economy to GDP trended up from 5.2 % to 5.9 % in 2020
- ICT sector dominates, especially software and telecommunications production, followed by ecommerce

https://www150.statcan.gc.ca/n1/dailyquotidien/230725/dq230725a-eng.htm

	2017	2018	2019	2020
	millions of	millions of	millions of	millions of
	dollars	dollars	dollars	dollars
Total, all industries	1,991,534	2,083,379	2,161,924	2,076,634
Total digital industries	104,356	110,633	122,018	122,628
Information and communications technology				
Hardware	6,536	6,913	7,454	6,575
Software	41,891	46,067	52,840	54,565
Telecommunications	36,166	36,399	38,133	38,526
Other services	9,912	9,981	10,151	9,966
Digital intermediary platforms	1,762	2,446	3,025	2,504
Data- and advertising-driven digital platforms	1,024	1,106	1,326	434
Online retailers and wholesalers	3,793	4,017	4,611	5,699
Digital-only firms providing finance and insurance services	2,204	2,476	2,947	2,944
Other producers only operating digitally	1,069	1,229	1,530	1,415



GDC Objective 4: Data governance

We commit, by 2030, to:

- Draw on existing international and regional guidelines on the protection of privacy in the development of data governance frameworks (all SDGs);
- Strengthen support to all countries to develop effective and interoperable national data governance frameworks (all SDGs);
- We will continue discussions in the United Nations, building on those outcomes and recognizing the ongoing work of other relevant bodies and stakeholders, including the United Nations Statistical Commission, in our efforts to pursue common understandings for data governance at all levels, as relevant for development (all SDGs).

Data Governance across systems: exploring strategies for official statistics



Data governance encompasses technical, policy, and regulatory frameworks to **manage data along its value cycle** — from creation to deletion — and across policy domains including health, research, public administration, and finance.

It ranks as a top priority for governments aiming to **maximize the benefits of data** while addressing challenges such as **privacy** and **intellectual property** as well as **competition** and **empowerment**.

Data Governance Framework – Vision for data



GDC Objective 5: Al Governance

We therefore commit to:

(a) Establish, within the United Nations, a multidisciplinary Independent International Scientific Panel on AI with balanced geographic representation to promote scientific understanding through evidence-based impact, risk and opportunity assessments, drawing on existing national, regional and international initiatives and research networks (SDG 17);

(b) Initiate, within the United Nations, a Global Dialogue on Al Governance involving Governments and all relevant stakeholders which will take place in the margins of existing relevant United Nations conferences and meetings (SDG 17).



Global Summit

Al events

AI skills & capacity

Al standards Al governance

Engage EN 🔻

见 Neural Network

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Al for Good Global Summit

Advancing trustworthy Al for sustainable development

8-11 July 2025 Geneva, Switzerland

JOIN FOR FREE OR GO VIP

Statistical Commission

Commission on Statistics and Data

Data Governance

Partnership on ICT

UN Committee of Experts on Big Data and Data Science for Official Statistics



.... PRE-SESSION HIGH LEVEL EVENTS

Seminar on Emerging Issues

DATA GOVERNANCE

Friday, 23 February 2024 10 am – 1 pm | 3 pm – 6 pm EST Conference Room 4

unstats.un.org | @UNStats | #UN55SC



Department of Economic and Social Affairs

UN Committee of Experts on Big Data and Data Science for Official Statistics



UN Committee of Experts on Big Data and Data Science for Official Statistics (10-year review in 2024)

Revised Mandate 2025

- To promote practical use of AI, data science and the use of big data and other alternative data sources, while building on existing precedents and finding solutions for the many existing challenges.
- To promote strategic relationships with private sector, geospatial community, academia and other public sector institutes to ensure better access to data and responsible use of AI; and cultivate ongoing knowledge sharing for enhanced capability.
- To promote data governance, AI governance, data stewardship and open data policies for better access and use of data.
- To promote and support the roles of the regional and global hubs for building capacity and for collaboration on the UN Global Platform [including the Regional Hub in Brazil]



Home > Events

5th International Seminar on Big Data for Official Statistics Measuring the Digital Economy

🛗 29 - 31 May 2024 🛛 😢 Xiamen, China



About

A distinctive characteristic of the digital economy is the intensive use by businesses of ICT for the collection, storage, processing and transmission of information. Business data from some industrialized countries show that improvements in productivity can be explained, at least partly, by use of ICT, which in turn is supported by supply of goods and services produced by the ICT sector and through trade. A robust ICT sector can also contribute to aggregate labor productivity growth.

The notion of the digital economy has become commonplace to describe how digital technology is changing patterns of production (supply) and consumption (demand). The different technologies and economic aspects of the digital economy can be broken down into three broad components: Core aspects of the digital economy, which comprise fundamental innovations (semiconductors, processors), core technologies (computers, telecommunication devices) and enabling infrastructures (Internet and telecoms networks).

Many sectors of the economy are being digitalized. This includes digitally enabled sectors in which new activities or business models have emerged as a result of digital technologies. Examples include finance, media, tourism and transportation. At the same time, digital transformation has permitted consumers to access a larger variety of goods and services, while exercising greater control over the characteristics of the transaction processes. This phenomenon is becoming near universal due to the continual



ABOUT \lor EVENTS

HUBS \lor UN GLOBAL PLATFORM

Home > Events

SPRINT ON Artificial Intelligence and Data Science for Economic Statistics

WEBINAR 1 - 7 Nov 2024

- WEBINAR 2 12 Dec 2024
- SYMPOSIUM 20 22 Jan 2025 Dubai, United Arab Emirates



Al Pipelines from Data to Insights

Dr Abdelrahman Al Mahmoud Head of Research & Infrastructure Al Office - UAE


Al Pipelines from Data to Insights

Dr. Abdelrahman AlMahmoud

Outline

- Recap
- Introduction
- Overview of AI Pipelines

Organization maturity to adopting AI

Low Maturity

Experiment with AI use-cases

Collect Good Quality Data

Mature

High Maturity

Build a Good Data Strategy Identify and define

Infrastructure

Data Strategy Framework

Collect and merge

Prepare and package

Governance framework

Data to AI Pipelines



Abu Dhabi National Oil Company (ADNOC)

Overview



First build a story that describes a very specific need for a user group (focus on the need)

The need comes before the tools

Current Capabilities

Better tools

Desired outcome

Impact driven

Components of a use case story

Based on studies and evidence

Measurable

Well

Defined

Overview



Data as a service

 Data distribution strategy that emphasizes the utilization of data



Data as an asset

 Shifts the focus from the utilization of data to creation of value



Overview





Data Fusion: the joint analysis of multiple inter-related datasets that provide complementary views of the same phenomenon

Overview



Training

Testing and Validation



ML Pipeline

Al Pipelines from Data to Insights

Dr. Abdelrahman AlMahmoud

First Annual Seminar



GROUP PICTURE



DATA SCIENCE Leaders Network

COFFEE BREAK



DATA SCIENCE LEADERS NETWORK

Innovation Work in the Data Science Campus Data Science and AI

Osama Rahman

Director of the Data Science Campus Office for National Statistics (UK)



DATA SCIENCE LEADERS NETWORK

Innovation work in the Data Science Campus: Data Science and Al

Osama Rahman

Director, Data Science Campus, ONS

20 January 2025

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Creating the ONS of the Future

The Three Pillars

Recent applications



Financial Transactions data

- ONS and Visa are in a partnership to develop anonymised and aggregated card spending big data into new economic data and to support official statistics production
 - Innovative data published so far include <u>spending flows across the UK</u>, <u>tourism trends</u> in small areas, estimations of <u>local consumption zones</u>
 - Ongoing projects to explore direct and indirect integration of card data into the statistical production of Household Final Consumption Expenditure (HHFCE), Tourism, Digital Trade, Regional HHFCE, Regional CPI
- Also in partnership with Pay.UK / Vocalink to develop interbank payment systems data into real-time business supply chain information, similar to input-output tables
 - Jan 2025 publication: monthly payment flows between SIC5 industries, capturing over 3 million UK businesses and organisations

Merchants located in **Covent Garden**, London: where their customers came from, Q3-2023



Source: Visa and ONS Publication: <u>Consumer card spending</u>, flow of spending across the UK: 2019 to 2023

Somalia census support / IDP camp mapping

- Supporting United Nations Population Fund (UNFPA) Somali National Bureau of Statistics (SNBS) and Foreign, Commonwealth & Development Office (FCDO)
- Establishment of enumeration areas to better account for Internally Displaced People (IDP) camps
- ML tool using satellite imagery to predict camp extents



Outputs / impacts

- Tool used to deliver camp footprints to UNFPA
- Development of end user application for application to wider use cases
- Support representation of IDP in censuses





Value Added Tax (VAT) Data

- VAT data can help improve quality and temporal granularity of GDP estimate and give real time insights on economy.
- VAT returns give insights into the turnover and expenditure of over 250,000 UK firms.
- Data is available within a month of reporting making it useful as an early indicator of economic activity.
- Existing work provides *diffusion indices* measuring the proportion of firms reporting an increase in activity compared to the preceding period.
- These generally track well with GDP indices, and can be used as an early indicator of economy and to improve GDP estimates.
- Current work is looking to extend to numerical indices explicitly using turnover returns.





Data processing: classification

Can the latest AI tools improve coding of labour market survey text data to SIC/SOC?

- Developed a proof-of-concept system, using an enterprise grade LLM.
- Applied this to anonymised survey response data
- Evaluated against clerical coding and a benchmark model.

Blog and Code on our website

LLM assisted SIC Coding

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What does the organisation mainly make or do?

newspaper and website

"sic_code" : "5813"

"sic_descriptive" : "Publishing of newspapers"

"sic_candidates" : [

"o : {

"sic_code" : "5813"

"sic_descriptive" : "Publishing of newspapers"

"likelyhood" : 0.7

}
```

"reasoning":

"The company's main activity is described as newspaper and website. This suggests that the company is involved in publishing, specifically newspaper publishing (SIC code 5813) and possibly also operating web portals (SIC code 6312)."

Preferential Tariff Utilisation Rates

Understanding the rate at which UK businesses make use of preferential tariff arrangements when trading with particular countries around the world

The linking of our InterDepartmental Business Register (structures and characteristics of UK businesses) with Trade in Goods data (what imports/exports businesses undertake in the UK)



Assessment of which categories of goods are imported using available preferential tariffs



This analysis allows UK Government to better understand which types of businesses across the economy are not benefitting from existing trade deals, and could be additionally supported to improve economic performance

UK Trade Shipping

Shipping Instructions (cargo container contents)



UK imports, by volume and routes between origin/destination ports



Automated Identification System data (ship transponders and GPS locations)



We are helping UK Government (DBT, DfT, CO) understand trade dependencies on critical passages throughout the world ocean.

Not only which critical passages cargo ships navigate through but also their cargo contents, making it possible to gain insights into specific categories of physical goods according to their importance to the UK economy

See also: UK PortWatch AIS

Global Supply Chains with LLMs

Trialling the use of Large Language Models to generate supply chains data across all categories of physical goods, to help identify gaps in existing data sources

LLM suggested values of inputs required to create Electronic integrated circuits An input-output table for whole physical economy, based purely on LLM's intrinsic "knowledge" of each product category

output:	8542 (6) Electronic integrated circuits		
inputs	hscode	description	value
	• 381800 Chemical elements; doped for use in electronics, in the form of discs, wafers or similar forms; chemical elements; doped for use in electronics	nical	30
	Machines and apparatus of a kind used solely or principally for the manufacture or repair of masks assembling semiconductor devices or electronic integrated circuits, or for lifting, handling, loading items of heading 8486	and reticles, or unloading	15
	2 382499 Chemical products, mixtures and preparations; n.e.c. heading 3824		15
	3 281129 Inorganic oxygen compounds; of non-metals, n.e.c. in item no. 2811.2		10
	 Waste and scrap of precious metals; waste and scrap of precious metals including metal clad with 711299 metals, other than that of gold and platinum and excluding ash which contains precious metal or compounds 	precious precious metal	10
	5 848620 Machines and apparatus of a kind used solely or principally for the manufacture of semiconductor	devices or of	20

By helping comprehensively identify products used across the entire supply chain, we can compare with existing data sources used for both official statistics purposes and for global supply chain intelligence in the Department for Business and Trade more efficiently

Thank you Any questions?

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20 January 2025

SHIFTING THE LENS Discovering new dimensions of data, and how to unlock it with the Private Sector

Guillaume Thfoin Chief Data Officer, Affiliate Professor ESCP Business School



DATA SCIENCE LEADERS NETWORK

This presentation will cover 2 of the 3 objectives of the Sprint

1. Develop a repository of compelling AI and data science use cases

- 1. The example of UAE's Majid Al Futtaim (MAF)
- 2. How can private sector data contribute to SDG and NSO
- 2. Address strategic and cross-cutting issues
 - 1. How to access private sector data
 - 2. How to maintain and grow access

> Majid Al Futtaim had set an ambition to set the bar for the region on data

Majid al Futtaim's Analytics Transformation started in 2017 with the ambition to position the company as the **leading "Analytically enabled" conglomerate in the region**



Scale our differentiating asset, our data, into a decision-enabling and monetizable platform that collects data universally, in real-time, and connects all our ecosystem into a single view of our customers and operations



Become customer centric in everything we do through our analytical capabilities, by deepening our customer understanding and engagement, making faster, better decisions to deliver personalized products, services and experiences



Deliver incremental revenue growth (up to 5% p.a.) and cost savings (up to 7% p.a.) vs industry peers, through use cases driving topline impact and operational efficiencies (and automation) and by enabling new business opportunities



Establish MAF as a talent creator in our region and beyond, through a solid tech reputation, to attract and develop the best tech talents that are critical to our wider digital transformation



And managed to deliver on it

In 2021, the trackable impact of use cases paid for the AA teams. By 2022, the cumulative trackable impact will have paid back all the investments, leaving MAF with revenue generating assets

 Key Facts

 30M+

 customer records

 ~30%

 UAE retail coverage¹

 ~KB AED

 Incr. revenues (since '19)

 Last of the second seco

Largest consumer database in the region spanning 18 countries Data as a decision-enabling and monetizable platform Rich and diverse omnichannel consumer behaviour Interactive and vibrant analytics community School of Analytics & Technology to build & grow talent within Tech talent scaling via partners and owned offshore centers Analytics federation to synergize decision making

Key Achievements

External data partnerships for consumer profile enrichment

🔆 Independent data monetization business set-up in 2021




The benefits of Private Sector Data

- 1. Massive scale
- 2. Real time (or quasi)
- 3. User/consumer level
- 4. Opted-in by default and extensible for research and SDG
- 5. Micro to meso to macro analytical capability
- 6. Connectable and integrable



SHOW ME THE DATA

To access the private sector data, mutually beneficial collaborations need to be formed

The question all CEOs and CFOs ask: " how does Analytics generate value" and why should they invest in it

Internal Value Creation			External Value Creation					
SELL BETTER	SELL MORE	SELL NEW	Data as a service	Insights as a service	Platform as a service	Consulting as a service	Media & Ad-Tech	
Through spend optimization and automation	Upselling, cross selling, new products	Market and Customers Insights, driving faster decisions	Being an open data marketplace for monetization	Reports, Market Analyses, Aggregated data	Analytics tools and platforms offered to 3 rd parties	AA Program building, AA transformation, trainings	Leveraging data to establish a media platform (online and offline)	
Top and Bottom-Line Impact (Impact to Core Business)			Value throe Gene	ugh Revenue eration	and/or	Value through Equity		
Revenue growth (up to 5% p.a.) and cost savings (up to 7% p.a.)			Potential Value of up to EUR XXXmn (annually) -					



DATA SCIENCE LEADERS NETWORK

The 3 main challenges private sector institutions face



THE DATASET



THE MINDSET



THE SKILLSET

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THE DATASET







The dataset – 3 steps to build the foundation **Collecting and** Setting up the Breaking through the IT dilemma cleaning all infrastructure the data

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THE MINDSET

I NEED YOUL

WITTE ...

IRPOSE

MARSHOR STAR

QUESTIONS

The mindset – 4 critical elements



THE SKILLSET

The skillset – Building teams and seeding the change



DATA SCIENCE LEADERS NETWORK



DATASET Start small but with ambitions

MINDSET Make sharing a movement SKILLSET It's not just for few geeks

DATA SCIENCE LEADERS NETWORK

Thank you Any questions?



FROM MAPS TO METRICS How Geo AI is Redefining Statistical Insights

Kate Hess

Senior Solutions Engineer

ESRI



DATA SCIENCE LEADERS NETWORK

From Maps to Metrics: How GeoAl is Redefining Statistical Insights

Kate Hess

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What Is a GIS?

A System for Managing, Sharing and Applying Geographic Information



Advancing Spatial Science



What Is AI?

Machine learning is about extracting patterns from data to derive rules, instead of these rules being explicitly programmed.

Deep learning is a type of ML using deep neural networks to find complex patterns especially in unstructured data (such as images, text, voice, and lidar).

Generative AI uses models like LLMs to create content like text, images, or code based on prompts

Artificial Intelligence

Machine Learning

> Deep Learning

> > Gen Al

Machine Learning

What Can Machine Learning Do?



Extract features from imagery & lidar



Make predictions



Find patterns & clusters



Detect anomalies



Extract insights from unstructured text

Spatial Statistics and Spatial Machine Learning

Hot Spot Analysis





Space Time Pattern Mining





Forest-based Classification & Regression







Predictive Analytics

Prepare Data, Make Predictions, Find Correlations, Understand Top Variables, and More

Predicting asthma rates



Predicting house pricing

Variable importance



ED

Dalla

Predicting sea habitat

Thickey

Detro

Variable correlation



Time series forecasting



Data engineering

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Anomaly Detection Spatial, Temporal, and Spatiotemporal Outliers

Time series outliers (temporal)



Spatial outliers (spatial)



Local outlier analysis (spatiotemporal)



Deep Learning

Imagery AI Workflows

Oil pads

Object Detection, Pixel Classification, Object Classification, Tracking, and More

Damaged structures



Roads



Swimming pools





Land cover

Pipeline encroachment Palm trees



Building footprints

Road cracks





Tracking in FMV



Pretrained AI Models

Making AI approachable



- >85 models
 - Segment Anything Model (SAM) foundation model
- Retrain on your data
- Trained for use on satellite imagery, drone imagery, lidar...





Wind Turbine Detection

Elephant Detection

Solar Park Classification

Road Extraction (Global

Building Footprints (Australia)

Cloud Mask Generation



Scene Text Parsing

Entity Extraction

Country Classification

Land Cover Classification

Persistent Change Detection

- Classic change detection tools could be less accurate with clouds, imagery mis-registration, and color differences
- Change detection empowered by deep learning can provide higher accuracy for persistent change (such as new buildings)
- This could be useful for many use cases like identifying urban growth patterns to provide recommendations for infrastructure planning, and identifying illegal construction









Predicting Urban Growth

Identify locations with a higher probability of urban development

- Use historical land cover raster data (urban and non-urban) along with other data sets as input variables (for example, drive time to the nearest urban center, proximity to freeways, proximity to environmentally protected areas, population growth, and slopes)
- Model development can take place in ArcGIS or other frameworks like R or Python





Generative AI

Making App Creation Accessible



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Automatic translation



Making Data Accessible

Easy to use, nearby





Use Case: Civic Information

- Users: Residents, Staff, Researchers, Reporters
- Purpose: Quickly access locationspecific information and spatial summaries
- Improve Understanding
- Constrained to authoritative sources

 Connects to live Feature Services, Geocoder, other services



Geospatial AI: Redefining Statistical Insights




Future of Data Strategy for Decision Making "Data Science and AI"

Mohammad Hassan

Executive Director of Statistics and Data Science Sector Federal Competitiveness and Statistics Centre (UAE)



DATA SCIENCE LEADERS NETWORK

UAE National Statistic Center (FCSC) initiated a task force (Future of Data Dept and Data Maturity Index Dept) to utilize Data Science and AI to steer digital transformation in Official Statistic



Future of Data Initiatives

المركز الاتحادي للتنافسية والإحصاء | FCSC UAE

Using Big Data to Explore Labor Market Demand in UAE

Using Big data application for interactive data exploration of the UAE Labor Market Job Demand through the utilization AI tool to collet big data across 500 online sources for job vacancy advertisement, providing real-time data to analyze and explore job demand in time series in the UAE



Card Transaction Big Data – Consumer Behavior for Tourism Indicators

UAE and Large Retailers are in partnership to develop anonymized card transaction big data on different economic activities to support official statistics in tourism initiatives and consumer spending behavior. LLM analysis on consumer behaviour with retails in UAE (980 Million Card Transactions, Totalling More than AED 229 Billion from Over 5m consumer)



114

Leverage the Power of Large Language Models (LLMs) to Enhance Official Statistic Analysis



1. Enhance Accessibility to Public Statistics:

Make UAE's public data easily accessible to all stakeholders through natural language queries and intuitive interaction.

2. Simplify Data Analysis and Visualization:

Provide tools for users to generate charts, graphs, and trends dynamically without requiring advanced technical skills.

3. Improve Statistical Methodology Guidance:

Offer expert-level support by embedding methodological manuals and best practices for accurate data usage.

4. Demonstrate Proof of Concept:

Showcase how LLMs can be effectively leveraged for statistical purposes.



Geo Al for Population Census

Using Geo AI and Utility Meters (Water and Electricity) to identify the new units in the Population and Economic Frame



Train AI to recognize and Detect Palm Tree

FCSC annotate images data for training AI and train AI Office proprietary image recognition algorithm solution to collect and label satellite image data of the UAE and to recognize tree and measure total greenery area and the health of the Palm Tree



The use of Latest Fixed-wing Drones with Geo AI provide comprehensive statistic analysis by AI on the status of agriculture in the UAE



Total Farms Area (Sqm)

2,396

Trees



Using Geo AI to count all farms and analyze the health of Palm Tree in all the farms in the UAE and saving millions of dollars on farm survey





High-resolution Drone Data Sample





Data Maturity Initiatives

المركز الاتحادي للتنافسية والإحصاء | FCSC UAE

Addressing strategic and cross-cutting issues relevant to AI and data science in economic statistic, cultural change and cross-domain data integration by Launching Government Data Index

The objective is changing the government data culture and collect new data from different sources through government services and enhance the data integration with statistic system by utilizing the UAE government's service data to develop new insights and knowledge for decision making (From Data to Knowledge)



The National Statistic Office launch "Data Index" as part of developing data strategy to overcome the data integration challenge through 3 main pillars and UAE NSO will act as "Auditor" to ensure implementation of the new data strategy



المحور الرئيسي: 1. الإطار التنظيمي والتشغيلي لإدارة البيانات



المحور الفرعي: 1.1 حوكمة الإطار التنظيمي والتشغيلي لإدارة البيانات

المعيار 1.1.1 سياسة تنظيم وإدارة البيانات المؤسسية



وصف المقومات

الأساسية / العوامل

التمكينية للمعيار

قامت الجهة بإعداد واعتماد سياسة مؤسسية لحوكمة البيانات، تحدد السياسة المبادئ والممارسات والمسؤوليات الأساسية لإدارة البيانات كأصل من الاصول الحكومية لدى الجهة، وتوفر السياسة إطار واضح لملكية البيانات وتحدد مسؤولية إدارتها ، مما يضمن الامتثال للمطلبات التنظيمية ويعزز جودة البيانات الإحصائية وسلامتها وأمنها لصنع القرار وانتاج الرقم الإماراتي الموحد.

> مستوى مجال على مستوى الجهة الحكومية التطبيق



متطلبات

الامتثال للمعيار



مجموعة من موجف الريسية والي مسمل وعلى عنه على . 1. تحدد السياسة مبادئ واضحة لإدارة البيانات، بما في ذلك الشفافية، المساءلة، والامتثال، وتُركز على توثيق الإجراءات الخاص بإدارة البيانات وإمكانية التدقيق على تنفيذها بما يضمن توافر البيانات وسلامتها . واستدامتها.



- تحدد السياسة متطلبات الامتثال لإدارة وحماية البيانات وأمن المعلومات. وإجراءات حماية البيانات الشخصية والحساسة وضمان عدم انتهاك الخصوصية أو تعريضها لأي مخاطر وتتضمن آليات المراجعة والتدقيق. .3
 - تتضمن السياسة آليات محددة للتحقق من جودة البيانات بانتظام من خلال مراجعات وعمليات تدقيق دورية. يتم استخدام مقاييس جودة محددة، مثل إمكانية الوصول ((Accessibility، التوصيف () Descriptiveness)، الاكتمال ((Completeness، الدقة ((Accuracy، الحداثة والدورية ((Timeliness، الشمولية ((Consistency، الاتساق ((Consistency، والمذكورة ضمن دليل تطبيق معايير قياس مستوى جودة البيانات الحكومية.. بهدف تحسين موثوقية البيانات وصحتها لاستخدامها في انتاج أرقام الإمارات الموحدة والمؤشرات الإحصائية لصنع القرارات والسياسات.
 - تضمن السياسة توفير بيانات متسقة ومتكاملة بين جميع الأنظمة مما يدعم اتخاذ القرارات بناءً على البيانات الرسمية الموثوقة عبر استخدام مفهوم مصدر إماراتي واحد موثوق للبيانات أو السجل الإداري.







Home | Statistics | Statistical Methods & Quality Gate

Statistical Methods and Quality Gate





Methodologies

Manuals & Classifications



This part of the SMGQ contains the main international manuals on data quality, in addition to the manuals and documents on data quality prepared by the Federal Competitiveness and statistics Authority to be used in the national statistical system in the country. These documents will cover the surveys and the use of the administrative records.

International Quality Manuals International Quality Evidence Collection National Quality Manuals

National Framework of Statistical Data Quality (NFSDQ) 2017	2.19 MB
Manual of Statistical Quality Standards and Procedures for Administrative Records	0.84 MB
Guide to Reviewing and Auditing National Statistical Survey Data 2017	1.06 MB
The Police Statistical Data Quality Framework	0.67 MB

NATIONAL FRAMEWORK OF STATISTICAL DATA QUALITY (NFSDQ)



Data Index solution monitor all government data integration and data quality using statistic

Library

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MOHRE_EMPLOYEE_SCORE_CARD - metrics

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▶ ACCURACY_APPROVED_CLASSIFICATION

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. CONSISTENCY_TIME

ACCURACY_WRONG_VALUES

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. COVERAGE_GEOSPATIAL

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How Big Data & Innovation Hubs Support National Statistical Systems



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