





Why Data Culture Matters

21st -22nd September 2022, Doha, Qatar Pullman Hotel, Al Thuraya Ballroom - West Bay ورشـة العمل الإقليمية حول الـدور المتغير للإحصاءات الرسـمية في دولة قطر: ثقافة البيانات مهمة

> ۲۱-۲۱ سبتمبر ۲۰۲۲، الدوحة، قطر فندق بولمان الدوحة، قاعة الثريا - الخليج الغربي

BUILDING MODERN DATA ECOSYSTEMS

THE CASE OF THE NEW ESCWA DATA ECOSYSTEM

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THE CHANGING DATA LANDSCAPE: DATA PRODUCTION AND DATA USE

STRUCTURED DATA

TYPES OF DATA BEING PRODUCED



STATISTICAL DATA



ADMIN DATA



TRANSACTIONAL DATA



UNSTRUCTURED DATA



TEXT & DOCUMENTS



MOBILITY DATA



IMAGES & MEDIA

CHANGING LANDSCAPE OF DATA USE



IDENTIFY OPPORTUNITIESto provide services and programs with real-time data



NEEDS for increased transparency and accountability

ADDRESS



policies
to ensure
efficiency and
efficacy of
development
efforts

INFORM



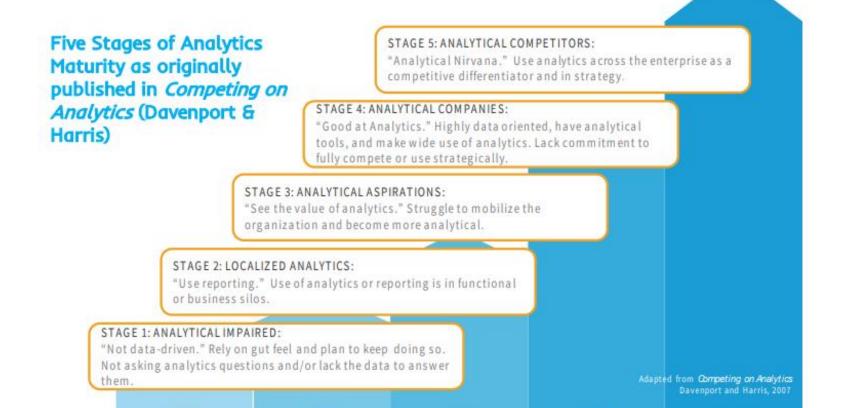
MONITOR
AND
EVALUATE
to identify and
understand
impacts



FACILITATE
REPORTING
to reduce the
burden of
sharing critical
data

DATA MATURITY LEVELS

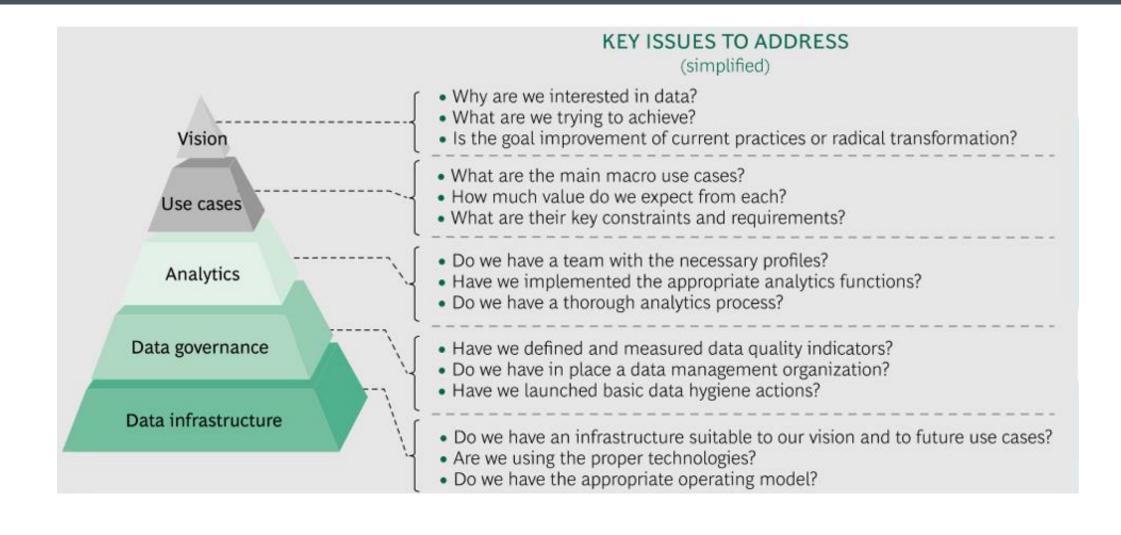
STAGE 1



STAGE 3

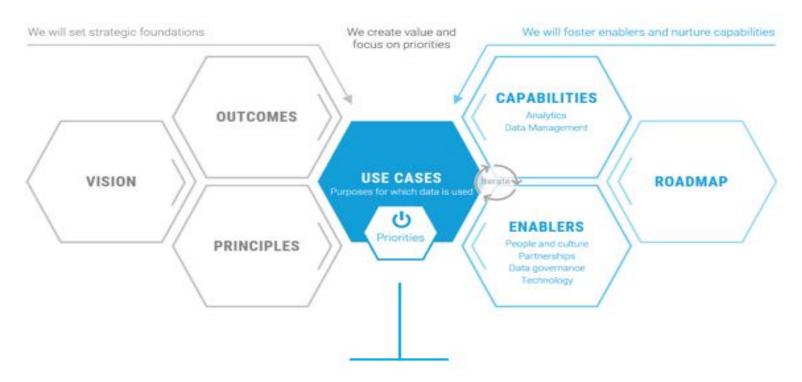
STAGE 5

FIRST THINGS FIRST – KEY ISSUES TO ADDRESS



APPROACHING DATA ECOSYSTEMS

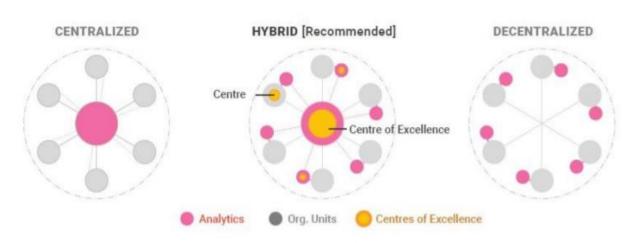
A problem-driven approach to building enablers and capabilities



The strategy orients the strategic foundation and enabling environment to focus on use cases and priorities that add value for stakeholders.

ORGANIZATIONAL STRUCTURE CONSIDERATIONS

NURTURE CENTRES OF EXCELLENCE WITH HYBRID MODELS



One centralized data and analytics team services all mgm't, policy, programme & operations needs.

Disconnected from subject-expertise

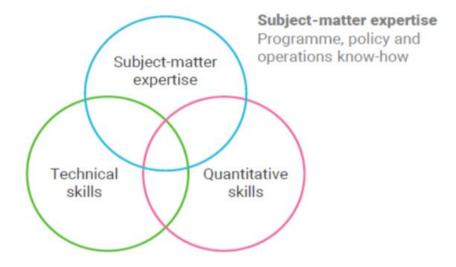
Hybrid of centralized and distributed collaboration; Centres of excellence promotes best practice.

Scoped & scaled for excellence

Decentralized activities within each unit, with uneven quality and ad-hoc governance.

Siloes of best or poor practice

FORM CROSS-FUNCTIONAL TEAMS



Technical skills Data engineering skills for managing data pipelines

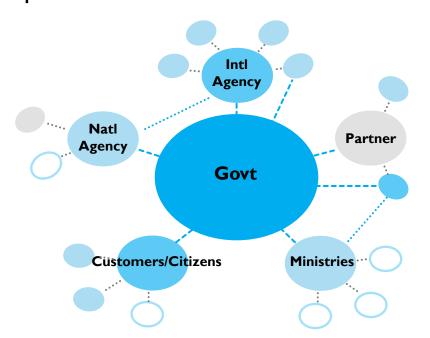
Quantitative skills
Data analytics and science
skills for insight and impact

MODERN DATA INTEGRATION ARCHITECTURES

A broad spectrum of data integration approaches exist in the current data landscape.

To achieve a holistic and integrated approach to the use of the great volume of data required in by Governments today, modern data architectures must be explored.

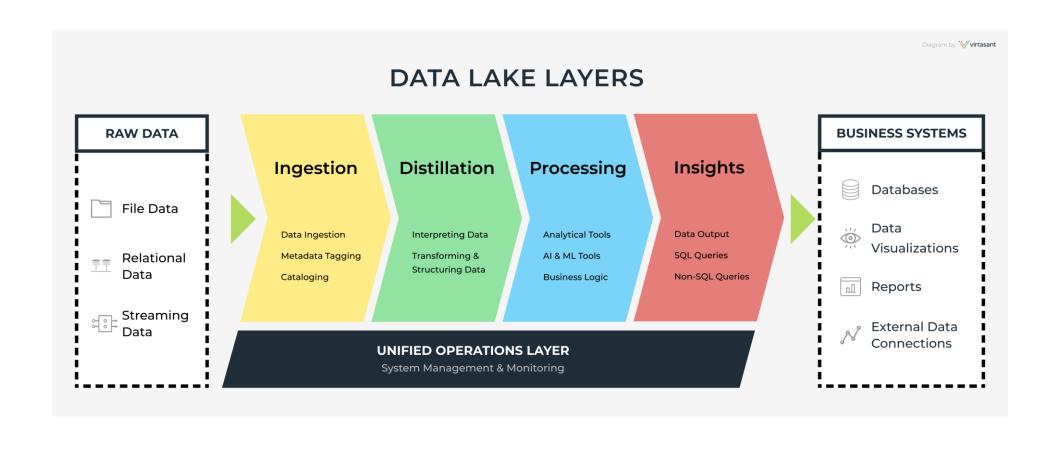
Given the interconnected nature of all our institutions and organizations today, a federated architecture can be used to enhance and support the mission and utility of data in Government operations and activities and lead to more successful adoption of big data technologies.



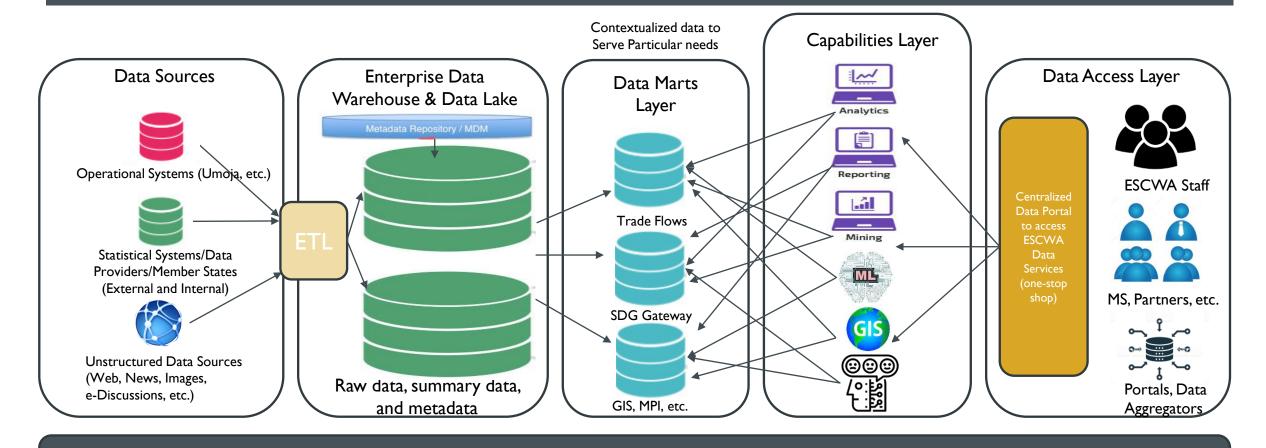
A Federated Architecture

- Facilitates the coordinated sharing and interchange of information among multiple data hubs.
- Provides visibility to all participating national, regional, and international organizations.
- Allows different entities to link their data hubs and share their data more easily with relevant parties.

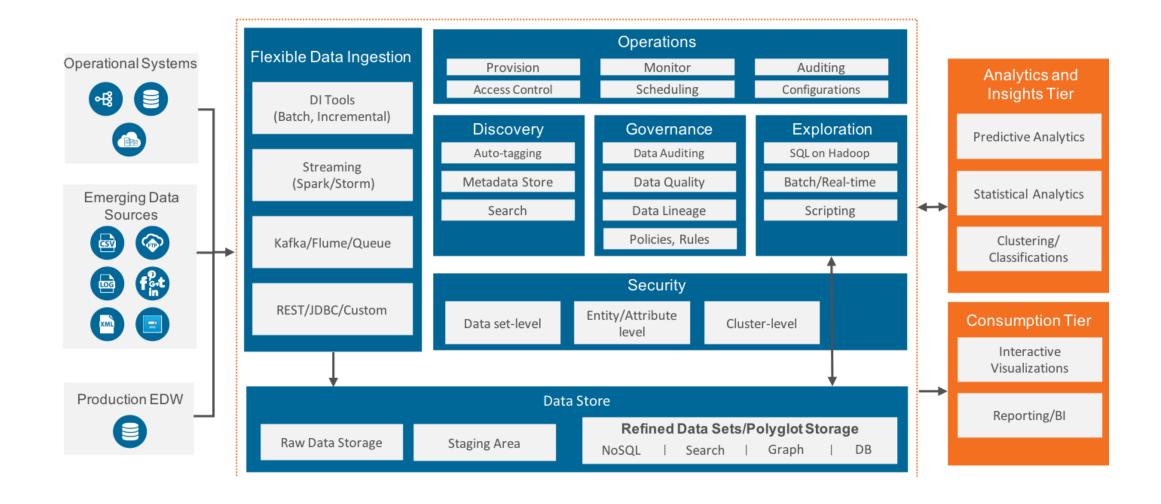
HIGH-LEVEL DATA OPERATIONS



HIGH-LEVEL REFERENCE ARCHITECTURE OF THE ESCWA DATA ECOSYSTEM



TECHNOLOGY STACK



LEVERAGING DATA ECOSYSTEMS

SERVICE DELIVERY

Big data analytics can be used by governments to improve existing services and to draw on novel datasets to drive entirely new public services

POLICYMAKING

Policymakers are using satellite imagery, cell phone data and more to produce alternative economic indicators for new – and real-time – policy insights

CITIZEN ENGAGEMENT

By applying machine learning to online and social media, governments can be more responsive to citizen sentiment, ushering in a new dimension of civic engagement

Application Areas for BIG DATA in Government

SAMPLE OF PRACTICAL APPLICATION OF DATA DRIVEN POLICY MAKING FRAMEWORK

 Stakeholder's engagement plan

Policy Knowledge Problem Data **Policy** Results **Data Mining** Development Definition Understanding Visualisation Consolidation Simulation and Modelling = 11 · Framing the policy · Data Sources · Identification of · Policy Design Impact Stakeholders Reporting question and Selection patterns and Assessment Communication · Policy Draft · Screening of objective correlations Big Data Data Acquisition policy options · Identification of of · Data Mining for and Preparation Experimentation · Behavioral Data impacting policy Model Validation Integration · Parameter's domains Models Space · Selection of Exploration Integration ndicators

LIVE DEMO

The ESCWA Data Ecosystem Portal

DATA GOVERNANCE ISSUES

Data Governance Layer

Master Data Management (MDM)

Data immediacy Data completeness Data

Data availability

Data Life-Cycle Management

Archive data

Maintaining data warehouse

Testing and delivering applications for performance

Data deletion and disposal

Data Security and Privacy Management

Sensitive data discovery Vulnerability and configuration assessment

Security

Change auditing Activity monitoring Auditing and compliance reporting

Identity and access management Protecting data in transit

CRITICAL SUCCESS FACTORS

Governments are challenged to leverage and process large amounts of data to provide better services, improve efficiencies and effectiveness of their operations and provide interactive user experiences targeted at different audiences. To do this, any big data framework must:



RESPOND TO CLIENTS/CITIZENS NEEDS

to serve as the main entry point to authoritative business/government data/services, and the corresponding metadata, from the organization itself and other relevant organizations/suppliers/partners required for the effective delivery of services



PROVIDE A MODERN ARCHITECTURE AND TOOLS

for the integration, presentation, analysis, visualization, communication, use and re-use of data.



BE BASED ON A TECHNOLOGY THAT SERVES BOTH USERS' AND PRODUCERS' NEEDS

through modern architecture and tools for the integration, presentation, analysis, visualization communication, use and reuse of data, and metadata.



ENSURE THE COMMON USE OF STANDARDS

For data exchange including metadata standards, concepts, and classifications to facilitate interoperability, traceability, integration, and usability.

QUESTIONS?

WAY FORWARD