



Arab Regional Assessment Study of the Enabling Environment for Big Data

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Lesvos in Greece – Venus C



The University of the Aegean in Greece developed the VENUS-C Fire app—featuring Bing Maps, Microsoft Silverlight, and Windows Azure—to determine the daily wildfire risk and fire propagation in the vulnerable island of Lesvos during its dry season.

Fire App Fights
Wildfires with Data

Geography of Natural Disasters Laboratory at the University of the Aegean in Greece to calculate and visualize the risk of wildfire ignition and to simulate fire propagation.



Give me a little data and I'll tell you a little. Give me a lot of data and I'll save the world.

Darrell Smith, Director of Facilities and Energy at Microsoft



“The information about the package is just as important as the package itself.”

Fred Smith, Fedex CEO

Agenda



What is Big Data



Importance of Big Data



Relevance of this study



Proposed structure of the study

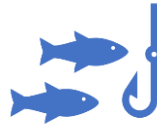


Different deadlines and time frame

What is Big Data?



Velocity



Variety



Volume



Veracity

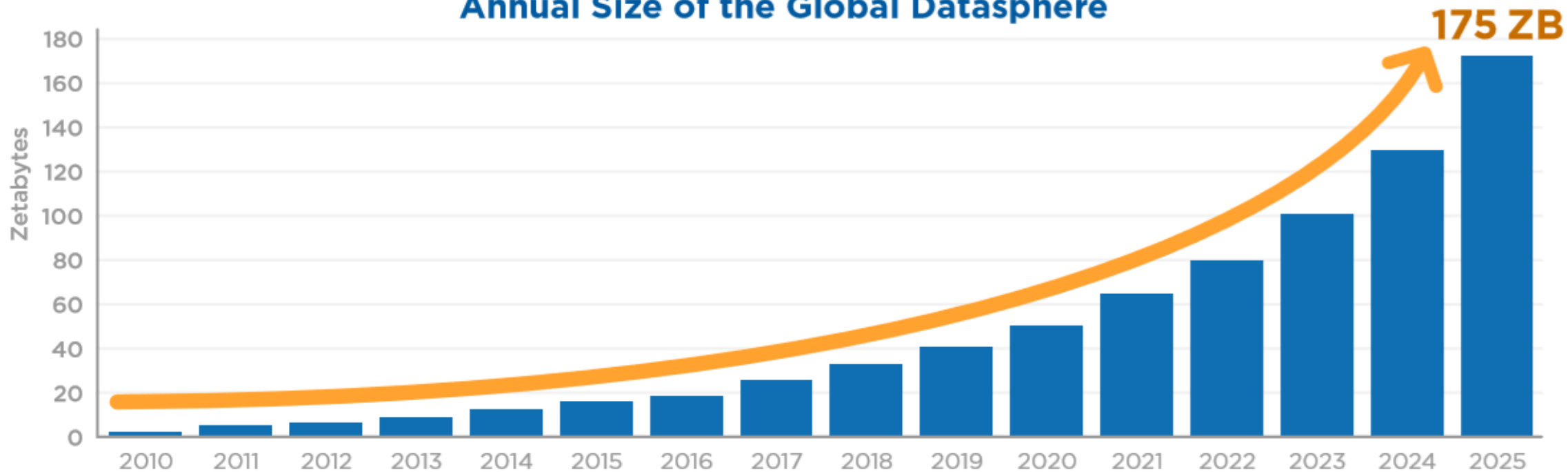


Value

“A paradigm for enabling the collection, storage, management, analysis and visualization, potentially under real-time constraints, of extensive datasets with heterogeneous characteristics.”

[Recommendation ITU-T Y.3600]

Annual Size of the Global Datasphere



Source: Data Age 2025, sponsored by Seagate with data from IDC Global DataSphere, Nov 2018

Big Data: Velocity



5 GB for an autonomous car!

Big Data : Variety



Structured Data

Data bases
Transactional



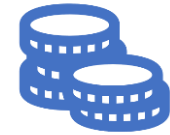
Unstructured Data

Social
Video
Text
Tweet
Voice
Images
Mapping



Various Sources

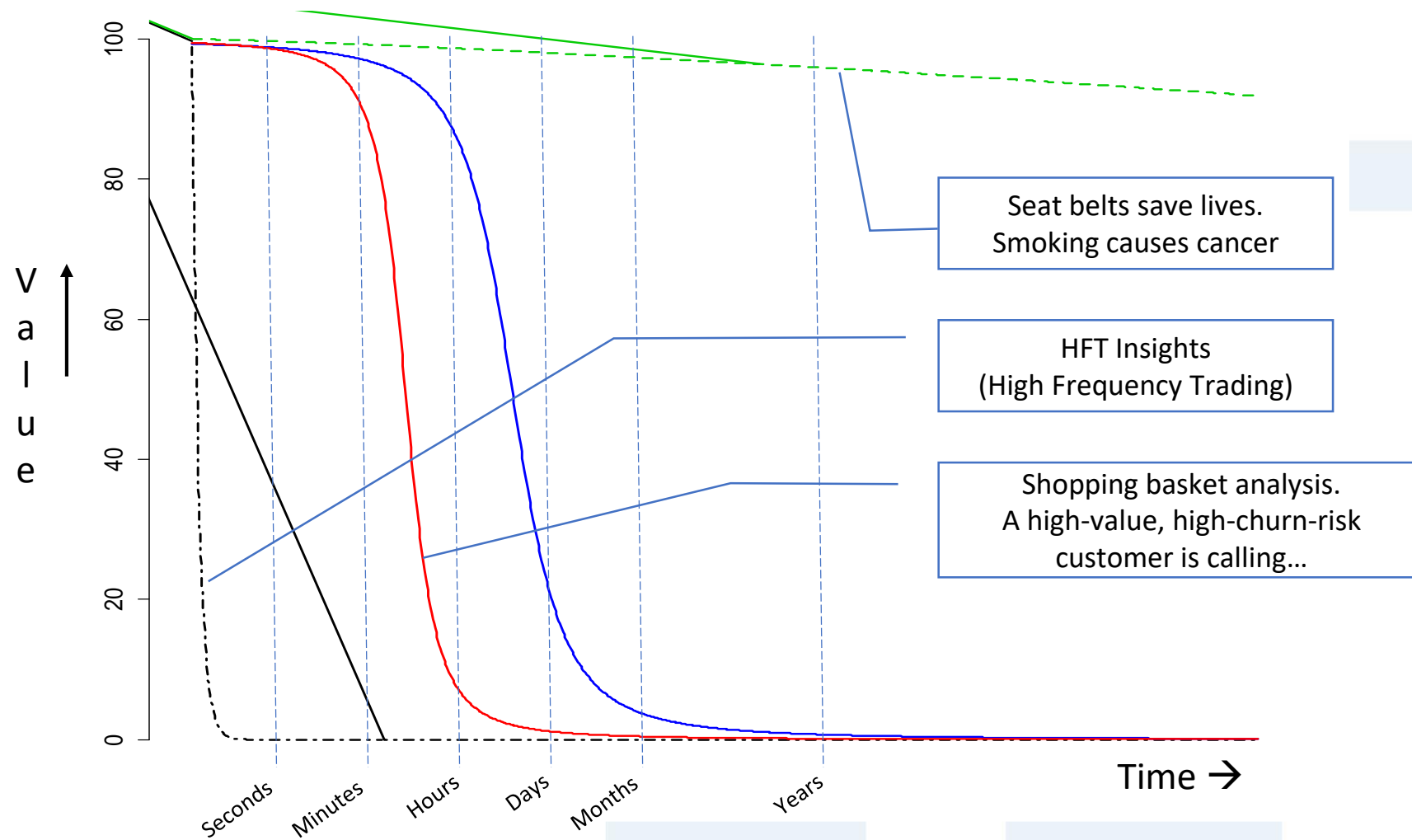
Sensors
Devices
Applications
Web
Public Data
GPS



Various Disciplines and Domains

Health
Weather
Finance
Social
Environment
...

Big Data: VALUE



Time to Value is shrinking

Data is the new Oil! Really?

95% of data in Oil&Gaz is lost before it gets to business leaders!

How many leaders treat their data as Oil? How many measure its value? How many show their Data value in their financial reports, do they report the value to their board? ...

Data is NOT the new Oil!



Abundance



Reusable



Replicable



Zero Weight



Instantly
transferable



Exponential
benefits

Why Now ?

- It is here
- Many sources
- Open Data

Data
availability



- Acquisition
- Storage
- Compute

Shrinking
Costs



- Easy
- Accessible
- Democratized

Technology



- Time to value relationship of Insight
- From Weeks to minutes

Time

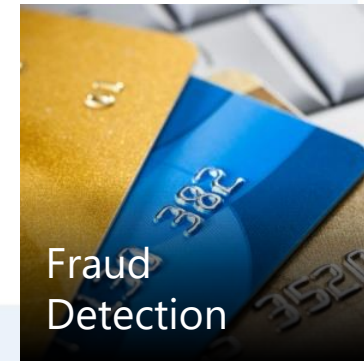
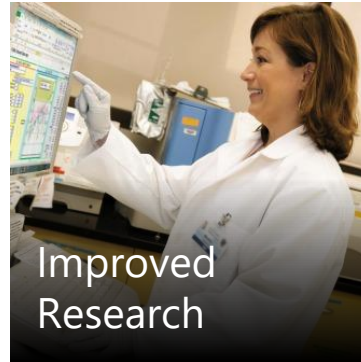
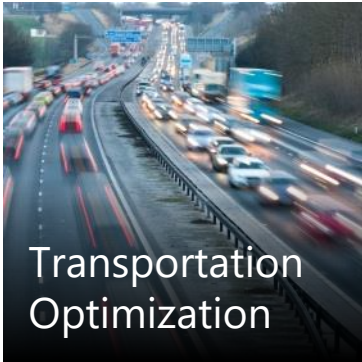


- What's the social sentiment of my citizens?
- How do I optimize my services based on patterns of weather, traffic, etc.?
- How do I better predict future outcomes?

New
Questions



What can Big Data do for Government?



New Opportunities for Cities



Pandemic Tracking



Natural Event Preparedness



Social Network Awareness



Employment Analysis



Fraud Detection

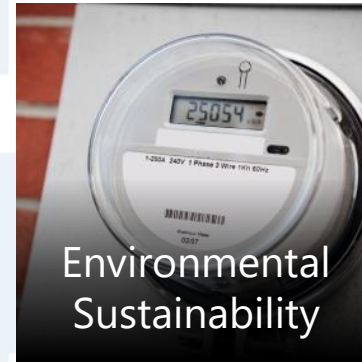


Eye On Earth



Fire Prevention

VENUS-C Fire Greece



Environmental Sustainability

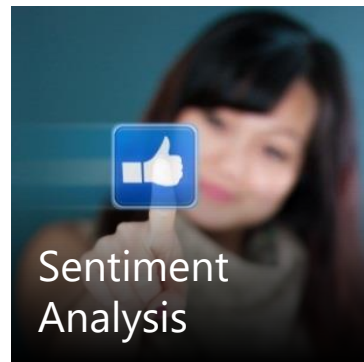
Issy Grid



Transportation Optimization

London Transport

New Opportunities for Businesses ...



Targeted advertising

Predictive Consumption & Maintenance
Blackout & shortage Prevention
Crisis Management
Faster & Better Decisions



Dubai Electricity and Water Authority
UNITED ARAB EMIRATES



Zweckverband Bodensee-
Wasserversorgung
GERMANY



Swiss Transjurane
SWITZERLAND

Why a ITU Study for the Arab Region ?



Learn the current
environment



Frame the discussion



Promote (awareness on
opportunities and challenges)



Help – focus the needed
support

Methodology



Expert Advise



Survey, online
questionnaire



Desk Research

Structure of the Report



Big Data definitions and evolution



Why Now



Opportunities



Challenges and Risks



Enabling Environment



Arab Countries Environment Landscape



Recommendations

Opportunities

« The data revolution was recognized as an enabler of the 2030 Agenda. It can not only help to monitor progress towards the SDGs, but it also engages multiple stakeholders to advance **evidence-based policies and programmes** aimed to reach the most vulnerable and leave no one behind. »



How data science and analytics can contribute to sustainable development



www.unglobalpulse.org
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1 NO POVERTY
Spending patterns on mobile phone services can provide proxy indicators of income levels

2 ZERO HUNGER
Crowdsourcing or tracking of food prices listed online can help monitor food security in near real-time

3 GOOD HEALTH AND WELL-BEING
Mapping the movement of mobile phone users can help predict the spread of infectious diseases

4 QUALITY EDUCATION
Citizen reporting can reveal reasons for student drop-out rates

5 GENDER EQUALITY
Analysis of financial transactions can reveal the spending patterns and different impacts of economic shocks on men and women

6 CLEAN WATER AND SANITATION
Sensors connected to water pumps can track access to clean water

7 AFFORDABLE AND CLEAN ENERGY
Smart metering allows utility companies to increase or restrict the flow of electricity, gas or water to reduce waste and ensure adequate supply at peak periods

8 DECENT WORK AND ECONOMIC GROWTH
Patterns in global postal traffic can provide indicators such as economic growth, remittances, trade and GDP

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
Data from GPS devices can be used for traffic control and to improve public transport

10 REDUCED INEQUALITY
Speech-to-text analytics on local radio content can reveal discrimination concerns and support policy response

11 SUSTAINABLE CITIES AND COMMUNITIES
Satellite remote sensing can track encroachment on public land or spaces such as parks and forests

12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Online search patterns or e-commerce transactions can reveal the pace of transition to energy efficient products

13 CLIMATE ACTION
Combining satellite imagery, crowd-sourced witness accounts and open data can help track deforestation

14 LIFE BELOW WATER
Maritime vessel tracking data can reveal illegal, unregulated and unreported fishing activities

15 LIFE ON LAND
Social media monitoring can support disaster management with real-time information on victim location, effects and strength of forest fires or haze

16 PEACE, JUSTICE AND STRONG INSTITUTIONS
Sentiment analysis of social media can reveal public opinion on effective governance, public service delivery or human rights

17 PARTNERSHIPS FOR THE GOALS
Partnerships to enable the combining of statistics, mobile and internet data can provide a better and real-time understanding of today's hyper-connected world

Big Data for SDGs



Senegal is using Big Data for improved diagnosis of poverty. The experience used call data records (CDR) data to build a high-resolution poverty map. The researchers concluded *“we believe that this Big Data and our models can generate disaggregated poverty maps for Senegal based on gender, the urban/rural gap, or ethnic/social divisions. Such poverty maps will assist in policy planning for inclusive and sustained growth of all sections of society. Our methodology is generic and can be used to study other socio-economic indicators of the society”*. <https://www.brookings.edu/blog/africa-in-focus/2015/06/02/big-data-for-improved-diagnosis-of-poverty-a-case-study-of-senegal/>



There are several ways to address the Hunger problem across the world. Increasing the farming yield and productivity is obviously one of the ways. There is a believe amongst world leaders, experts and scientists that important step towards solving that issue is to allow farmers, scientists, and entrepreneurs unrestricted access to agricultural big data. The reason being that Big Data can increase crop yields by helping farmers make better decisions about when to plant, manage and harvest their crops by harvesting several key well defined data sets. Data sets can come from the traditional weather. But today, drones provide imagery, sensors in the soil provide data, sensor in herd provide data, biotech data comes from labs, ...



The UN Women developed a full report on Gender Equality and Big Data: Making Gender Visible. “The report provides background context on how big data can be used to facilitate and assess progress towards SDG “Achieve gender equality and empower all women and girls”. It examines successes and challenges in the use of big data to improve the lives of women and girls, and identifies concrete data innovation projects that have considered the gender dimension from across the development sector.”



Charity:Water is a well know NGO that focuses on Water issues and is developing water projects in many part of the world. They are now using Big Data in an interesting way. By putting sensors straight into the taps and the well, these sensors are sending massive data to a central location in the Cloud, that is then used by Charity:Water data scientists to get a real-time feed on water consumption and a real map of water utilization and pumping, which is then used for better management, optimization, planning.

Enabling Environment



Infrastructure



Skills and Competencies



Innovation Ecosystem



Trust Ecosystem

Timeline

Survey ends: December 30th

2nd Draft Report: January 20th

Final Report: February 15th

Actions



RESPOND TO THE SURVEY



SHARE THE SURVEY

<https://www.itu.int/en/ITU-D/Regional-Presence/ArabStates/Pages/RIAP/RI2018/QBD.aspx>