

AI Value & Business Case

Lesson 3: Practical Application

Topic : Industry Specific



AI Application Different Sectors



Energy Industry



Health Care



Education



Agriculture



Retail Business

- Predictive Prescriptive Operation-Maintenance and Optimization
- Energy Demand & Production Forecast and Optimization
- Process Diagnostics

- Disease Detection
- Disease Prediction
- Patient Outreach
- Hospital Resource Optimization

- Governing factors of individual student performance
- Performance prediction
- Focus group identification
- Beneficiary target
- Resource Allocation

- Governing factor of crop production identification
- Affect of weather on crop production prediction
- Operational parameter
- Resource Optimization

- Sales Prediction
- Customized pricing
- Customer grouping profiling
- Targeted Promotion
- Supply-chain optimization
- Optimizing warehousing

Huge Saving in Cost Time and Resources



Save Costs in

- Products & Quality
- Human resources
- Maintenance



Save Time in

- Daily Services
- Searching Information
- Better Financial Planning



Save Resources in

- To minimize cost
- Augment resources for maximum coverage
- Surplus money to augment services
- Extend life of the service

Practical Application of AI



**However, Latest
Technology
Advanced to
Digital Twin and
Metaverse, where
AI serves in the
background such
technology**





Digital Twin =

Virtual Replica of Real
World's Asset and
Activities

Metaverse =

Digital Twin
+
Human Avatar

- You can live inside your virtual world
- Make decision and perform action for operation in real time without being present physically
- Collaborate real time with coworker
- Help building the solution in real time

Energy Industry

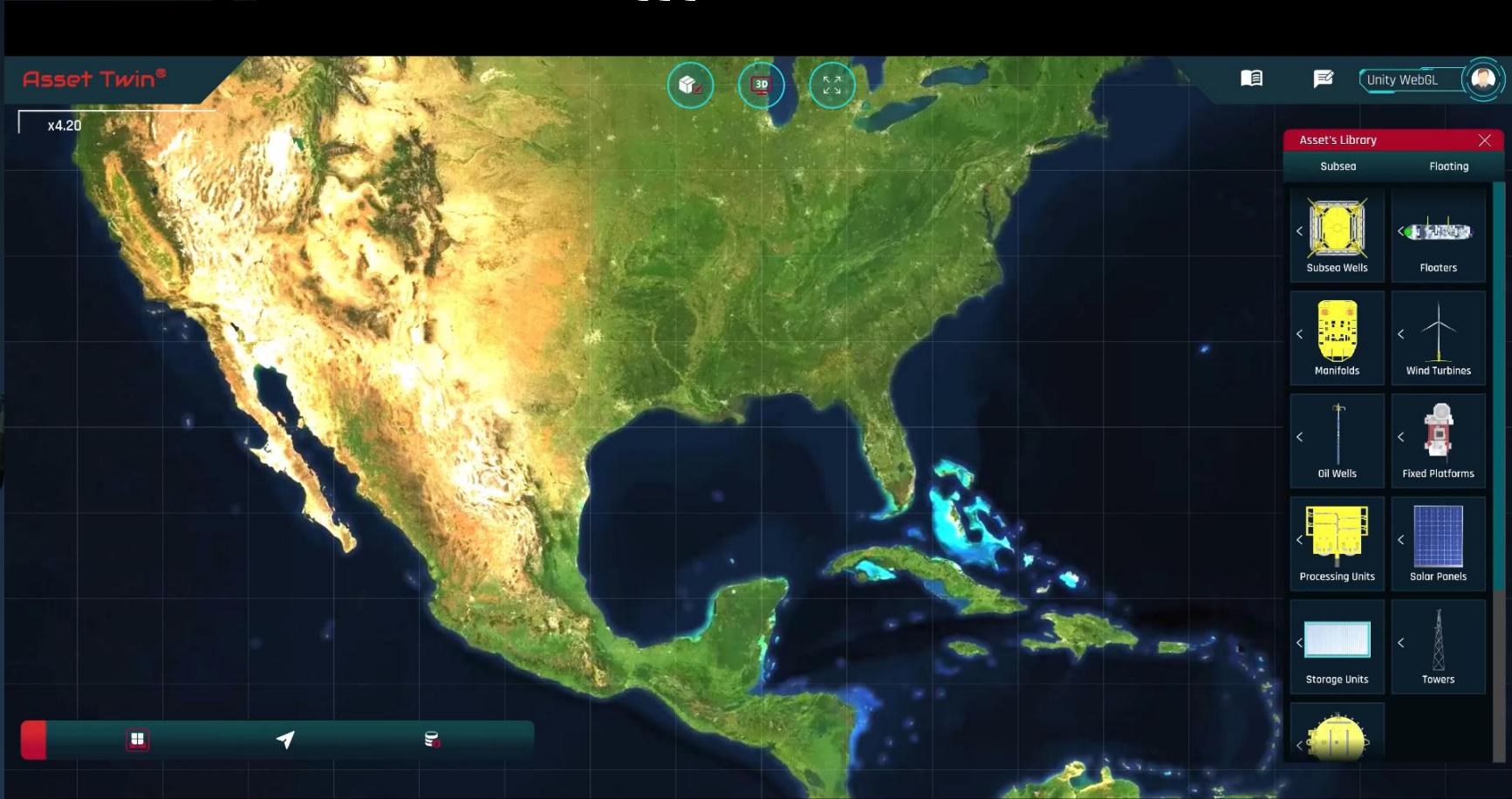


AI Application

Predictive Maintenance

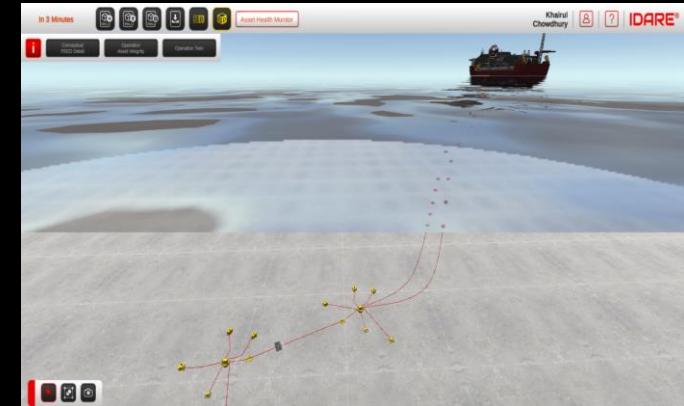
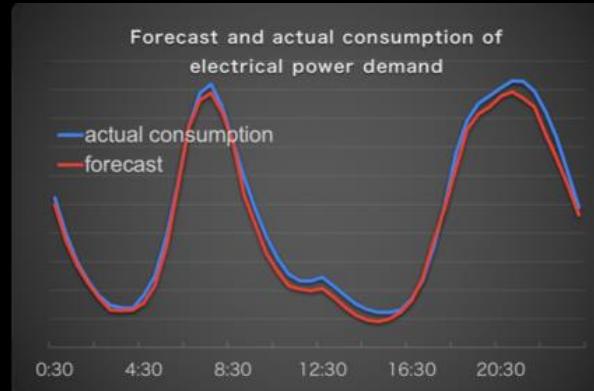


Energy Metaverse



- Sensor-less Machine Monitoring
- Process Monitoring
- Maintenance Scheduling

Power & Utility



AI Powered Energy Demand Prediction

- Energy Consumption Customer Electricity Load. Petrol load , Gas load Demand
- Generation, Distribution and Transmission management from demand prediction
- Detect System Loss
- Power Plant maintenance cost reduction, extend plant life

Customer Management

- Estimate users weather load, light load and base load
- Customer energy saving schemes
- Detect who is misusing electricity, gas and water
- Customized Pricing removing subsidy

Bangladesh

- Power Demand: 34GWhr 2030 current Prod 25GWhr
- Power Revenue: 3500 crore taka
- Subsidy: 2000 Crore Taka
- System Loss 10% (14%)
- 62.9% from Natural Gas

Healthcare



Intelligent Dengue Tracking and Management System (iTDTAMS) by IDARE



Cabinet
Division
Innovate for All
Ministry of Economic
Affairs



IDARE®

Hospital Scenario | City Corporation Status | Public

Dhaka Hospital's Vitals

Total Cases **20,779**
Discharged **20,194**

Total Deaths **88**
Currently Admitted **497**

D. Hemorrhagic **0**
D. Fever **128**

D. Shock Syndrom **0**
Hospitals **41**

Case Distribution by Hospital Category



Government 30.7%
Private 69.3%

Hospital Wise Dengue Cases and Status

Sir Salimullah Medical College & Mitford Hospital

Total Cases: 3,531
Recovered or Released: 3,438
Total Death 21
Currently Admitted: 72

Ad-Din Women's Medical College Hospital

Total Cases: 1,076
Recovered or Released: 1,069
Total Death 0
Currently Admitted: 7

Combined Military Hospital (CMH)

Total Cases: 1,043
Recovered or Released: 1,002
Total Death 0
Currently Admitted: 41

Dhaka Shishu Hospital

Total Cases: 1,024
Recovered or Released: 981
Total Death 15
Currently Admitted: 28

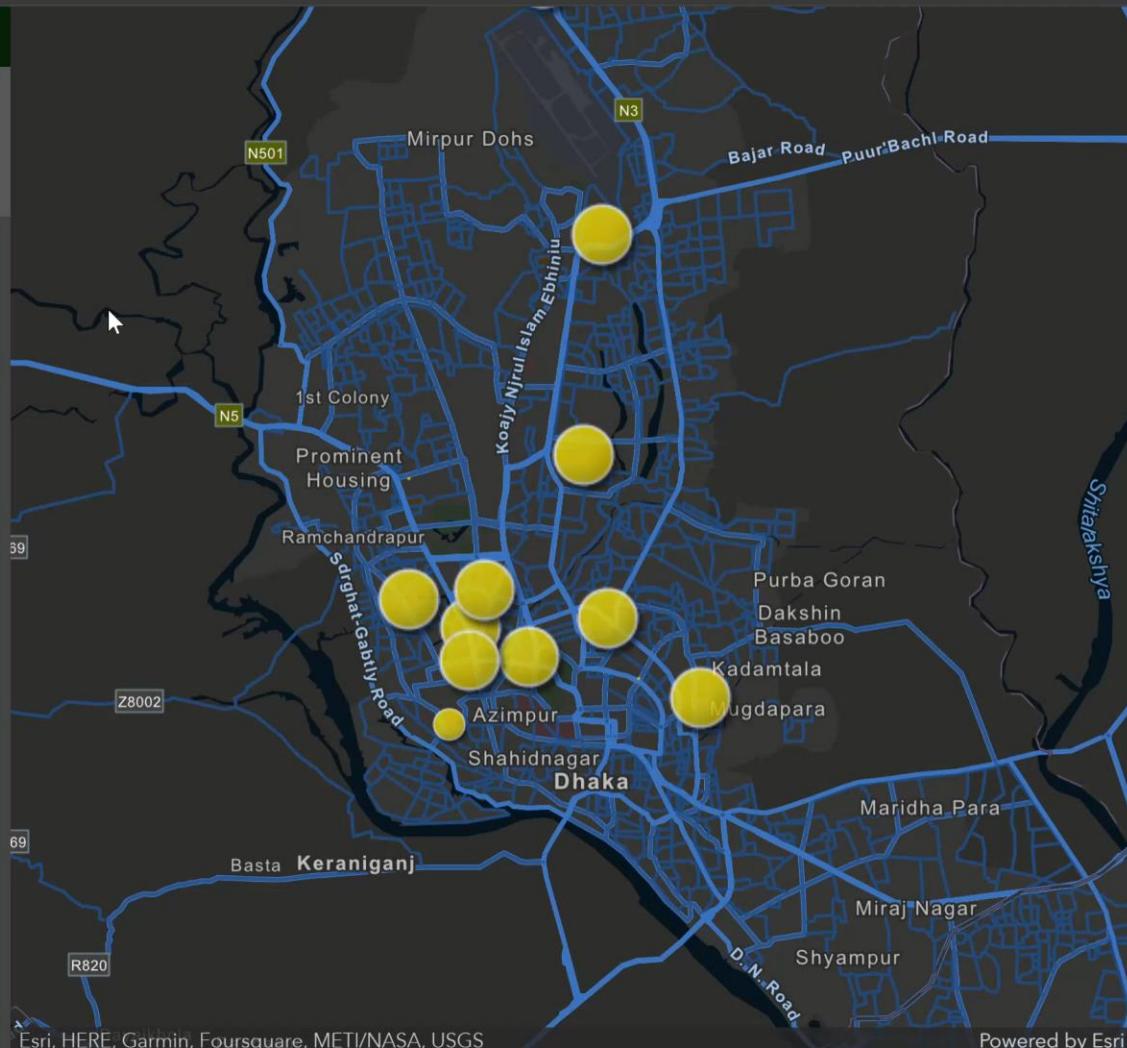
Central Hospital Ltd, Dhanmondi

Total Cases: 993
Recovered or Released: 981
Total Death 2
Currently Admitted: 10

Holy Family Red Crescent Medical College

Total Cases: 991
Recovered or Released: 980
Total Death 2
Currently Admitted: 9

Ibn Sina Hospital, Dhanmondi



Dengue Dhaka Hospital Cases

Cumulative Case

> 150 - 300

> 100 - 150

> 50 - 100

> 1 - 50

0 - 1

Vitals

Patient Distribution

Time Tracker

Recommendations & Alerts

AI Predictions

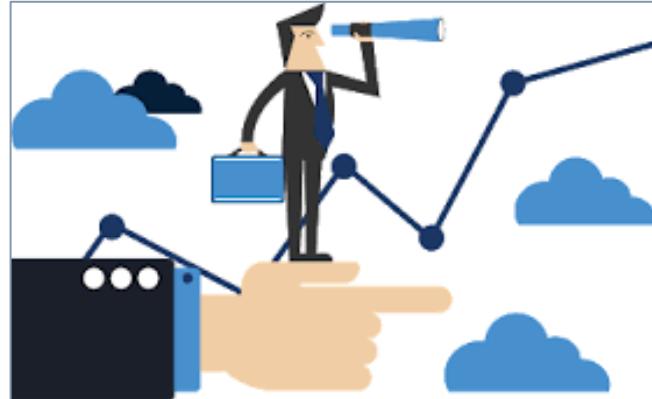
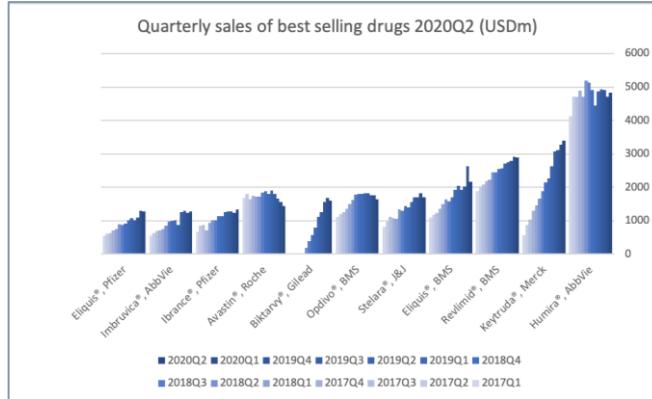
Hospital Resource Manager

Hospital Allocation to City People

Esri, HERE, Garmin, Foursquare, METI/NASA, USGS

Powered by Esri

Applications in Pharmaceuticals



Forecasting Drug Demand

- predict popular seasonal brands in the Allergy and other category.
- Predict location wise and timewise demand

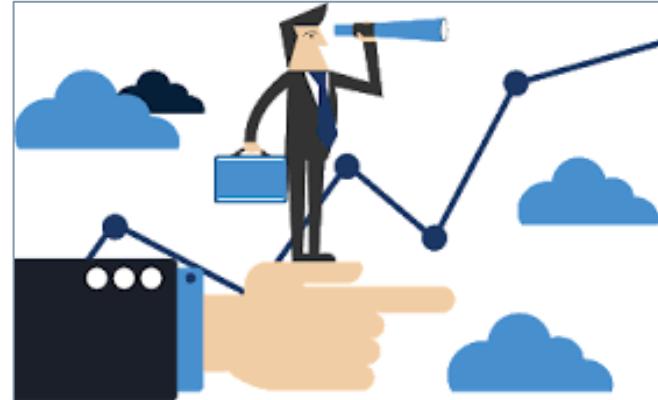
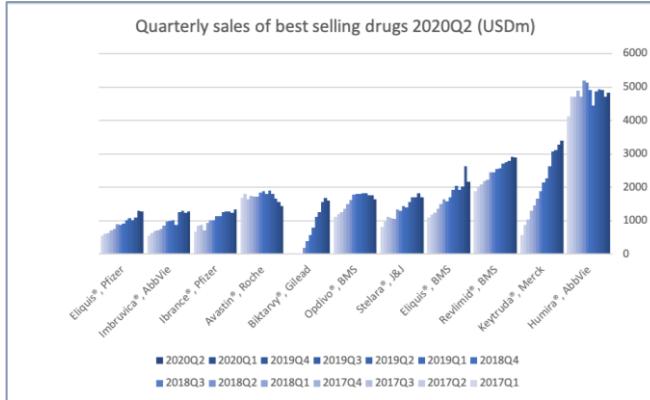
Increase Revenue by Sales increase

- Create targeted promotion digitally or through representative based on prediction
- Offer location wise and season wise customized pricing based on predicted demand

Expenditure save by Supply chain Optimization

- Upgrade Production Plan based on prediction
- Manage Inventory
- Upgrade financial planning and better loan management

Predictive Disease Spread



Forecasting Disease Cases

- predict communicable or seasonal diseases and potential spreads.
- Identify governing factor for disease spread.

Help Drug Discovery

- Identify governing factors for drug effectiveness in clinical research.
- Help improved quality control of drugs.

Help Better Prediction of Drug Demand

- Better quality drugs
- Better understand drug demand

Education



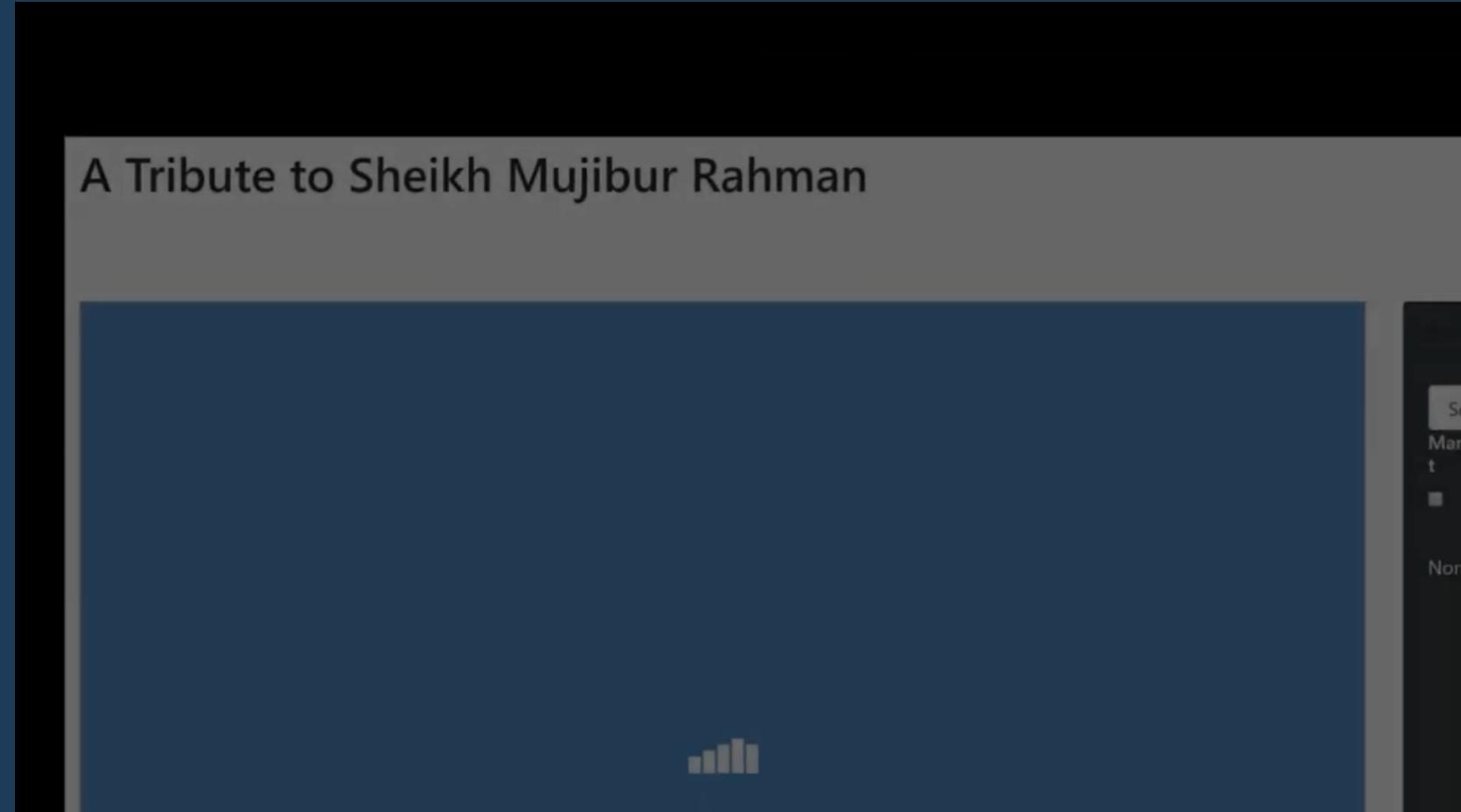
Education

Predictions

- Prediction of school dropout
- Prediction of School Fail rate
- Performance of students based on socio economics

Resource Manager

- Targeted beneficiary identification
- Identifies Key performance indicator for student performance, dropouts etc
- Prediction Based Resource Allocation Engine for Pass Rate Enhancement



Agriculture



Agriculture



Species-Livestock Management

- Breeding management
- Species-vegetation recognition
- Livestock production prediction
- Weed detection
- Fish growth prediction



Field Condition Management

- Soil Management
- Water Management



Crop Management

- Yield Prediction, matching supply and demand
- Crop quality
- Disease detection

Retail Business



Retail Business



AI Powered Customer Retention

- Customer Profiling for Better Pricing
- Customer Churn Prevention
- Customer Product Usage Segmentation

Site Analysis & Territory Planning

- Choose Best Facility based on
 - Sales Prediction
 - Void Analysis
 - Suitability Analysis

Inventory Management

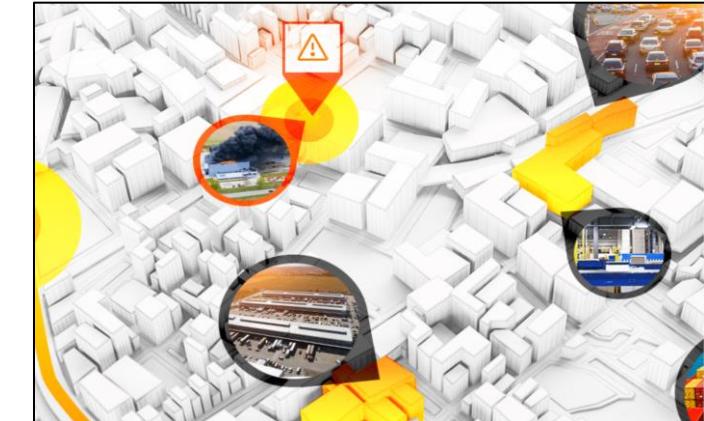
- Prediction Based Inventory Management for
 - Stores
 - Individual Products

Financial Sector



Digital Twin Technology Revolutionize The Banking Sector

Financial Sectors



Business Financing

- predict the success rate of a project for project financing
- in the area of acquisition or in cross-selling an existing product into a new market

Customer Financing

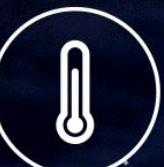
- creating digital households to explore various lending outcomes
- predicting the risk factors while lending to potential clients
- predicting the behavior of the client if there is a sudden fluctuation in the market which helps the bank to get an idea of the potential client can cope with sudden changes in the market and return the borrowed amount safely

Asset-Capital Management

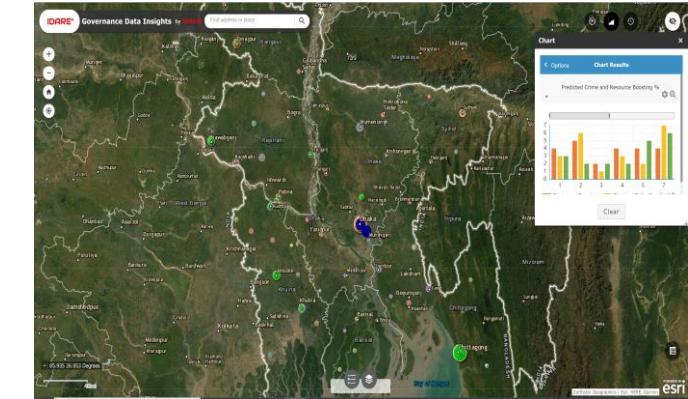
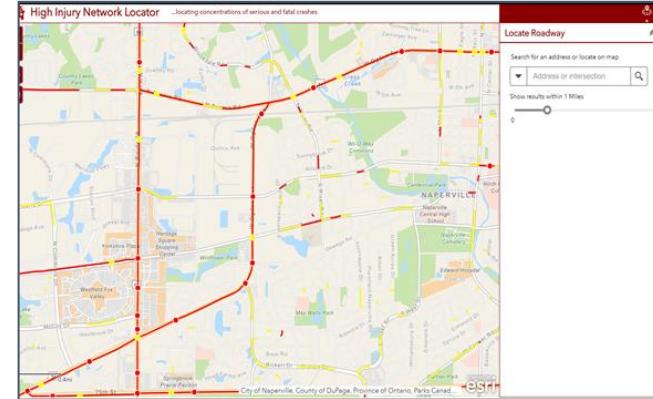
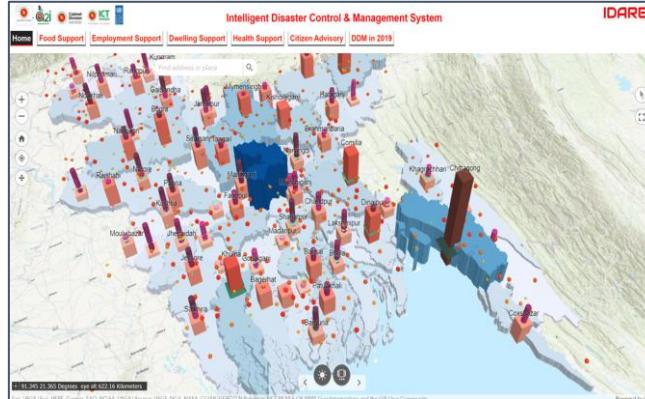
- Digital Twin Technology
 - to test the customer response to a product before its launch.
 - employee or a group of employees can help to get an idea about how certain changes in work-related policies affect the attitude of the employees towards the organization.
- Understand the effect of different market conditions on future projects



SMART CITY



Smart City: Multi-Disciplinary AI



Energy Consumption

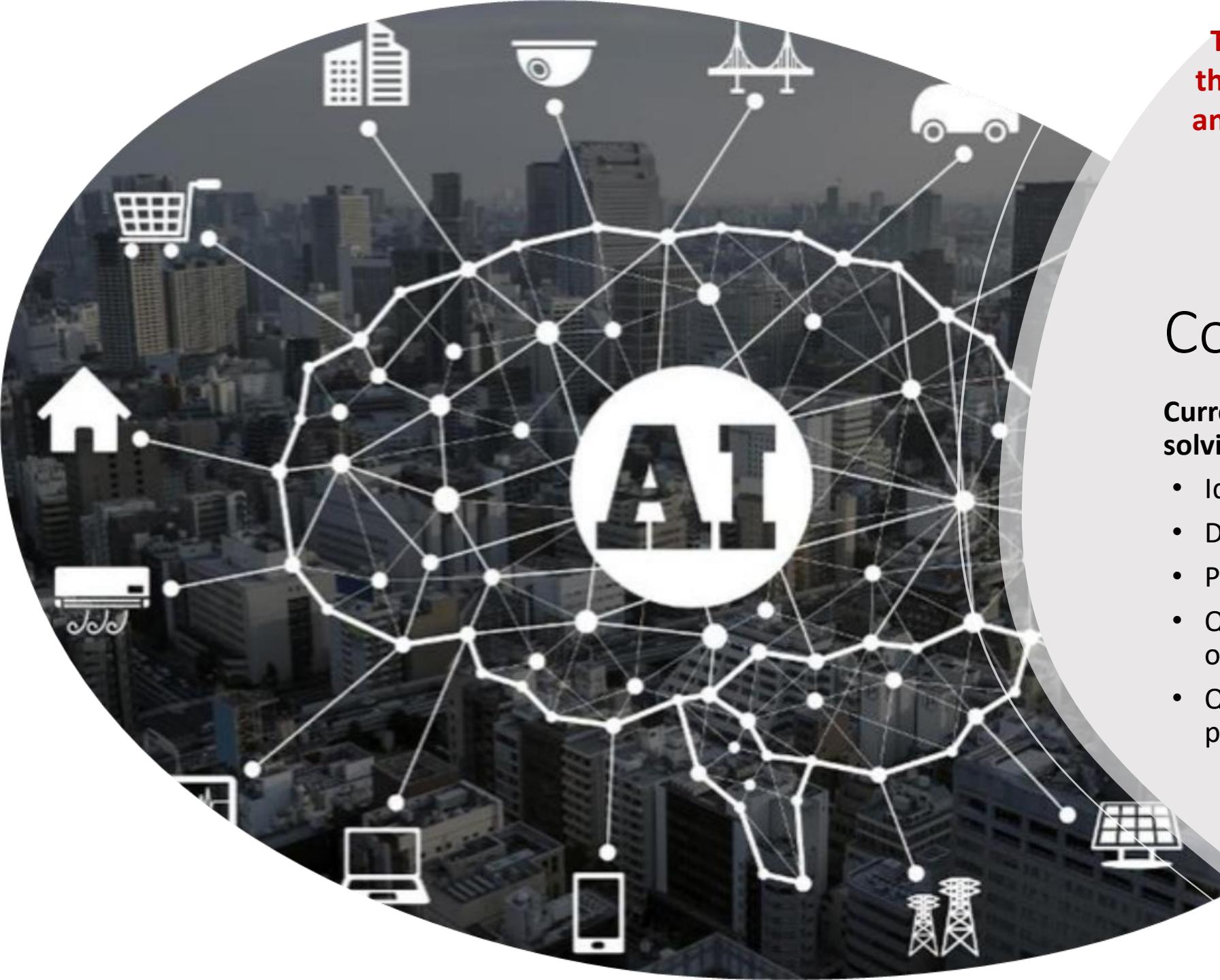
- Electricity, Water, Gas System distribution and maintenance
- Electricity, Water, Gas Consumption Tracking
- Customized pricing-taxing
- Project Progress Tracking

Roads & Highways

- Traffic Predictions and Planning
- Accident preventions
- Resource Planning

Law & Order Management

- Predict Potential Crime type and Location using AI
- Visual Analytics of Crime Occurrence and Predictions
- Prediction Based Decision support for Resource Allocation



Technology moved much ahead then AI already, into Digital Twin and Metaverse, where AI serving as an integral part of those technology.

So, Time is Now Conclusion

Current Practical Applications of AI solving Mainly

- Identifying root cause of a problem
- Diagnosis of a problem in system
- Predicting a problem in a system
- Quantifying time of a problem may occur
- Quantifying the magnitude of a problem

Having above intelligence augments critical decision making in various business