urban TECHTONIX

BY VALLURI TECHNOLOGY ACCELERATORS

A UNIFIED TOOL TO DIAGNOSE AND PREDICT THE HEALTH OF YOUR CITY

OVERVIEW

Urban Techtonix is an intelligent Urban Management & Planning tool that integrates a 3-D visual map of a city or an urban area, with Environment, Energy, Infrastructure, Traffic and Water related parameters to deliver forecasted models and impact assessments for effective decision making.

The tool can provide users with a clear understanding of existing and future urban scenarios. Urban Techtonix becomes a highly effective decision-support system for citizens, urban planning agencies, public officials and other key stakeholders involved in the planning and development of cities and urban areas.

SOLUTION FEATURES

Air Quality | **Water Quality** | **Infrastructure & Land Use** | **Building Energy**

Integrated Modelling

Through Integrated Modelling, users can view and analyze information from a diverse set of domains. Several distinct modelling techniques can be converged and their outputs visualized on a unified 3-D dashboard to give users a comprehensive view of their city's condition

Predictive Intelligence

Urban Techtonix uses Predictive Intelligence techniques which enables users to leverage forecasted assessments and information and take an informed, pro-active approach towards managing urban scenarios

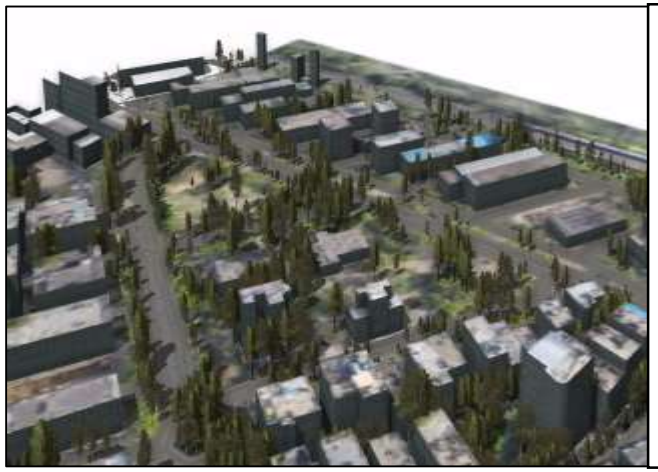
Correlative Analytics

Urban Techtonix uses correlative analytics, a highly advanced process of multivariate data analysis, which can assess urban parameters and their impact on each other.

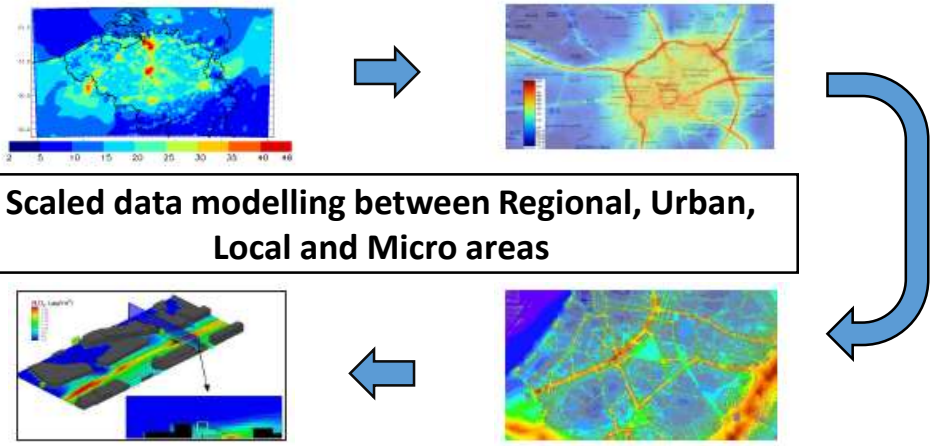
Embedded Technologies

INTEGRATED MODELLING

INTEGRATED MODELLING DASHBOARD



Urban Techtonix uses Integrated Modelling to view and analyze information from a diverse set of domains, from a single point. Several distinct modelling techniques can be converged and their outputs visualized on a unified 3-D dashboard to give users a comprehensive view of their city's condition.



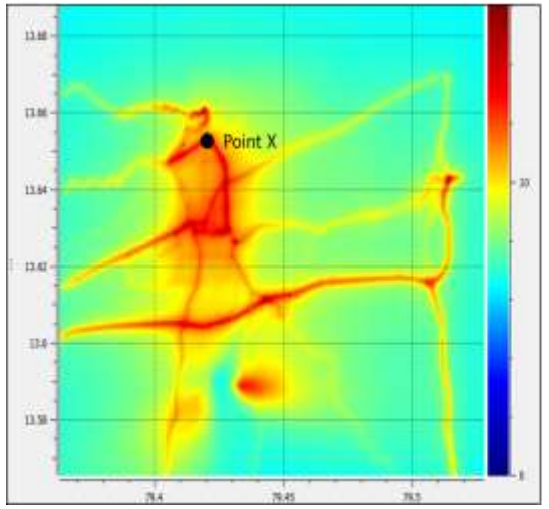
Scaled data modelling between Regional, Urban, Local and Micro areas

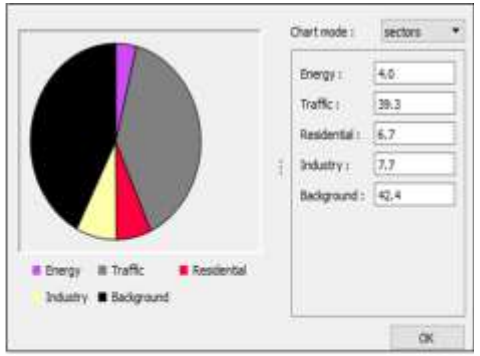
1. **Air Quality Assessment, Forecasting and Modelling:**
   - Real-time and forecasted air quality assessments
   - Impact of Air Pollution on Public Health
2. **Water Quality Assessment, Forecasting & Modelling and Predictive Flood Assessments:**
   - Real-time and forecasted water quality assessments
   - Impact of Water Pollution on Public Health
   - Predictive flood assessments and impact assessments
3. **Infrastructure Health and Land Use Assessments and Modelling:**
   - Predictive modelling and forecasting of key urban infrastructure (roads, bridges, etc.) for planned maintenance activities
   - Modelling of land use patterns to gain insight into key metrics such as habitation patterns, population growth, and multiple factors associated with urban development.
4. **Building Energy Modelling and Assessment:**
   - Assessment and forecasting of energy consumption and efficiency analysis about specific buildings in an urban area.

PREDICTIVE INTELLIGENCE

Air Quality	Generation of forecasted spatial and temporal air quality assessments and predictions
Water Quality	Generation of forecasted spatial and temporal water quality assessments across water bodies
Flood Risk	Generation of forecasted spatial and temporal flood risk assessments for an urban area
Infrastructure	Prediction of the future quality and safety of large public infrastructure such as roadways and bridges
Land Use	Prediction of the use of land in existing and expanding urban areas

Air Quality in a City



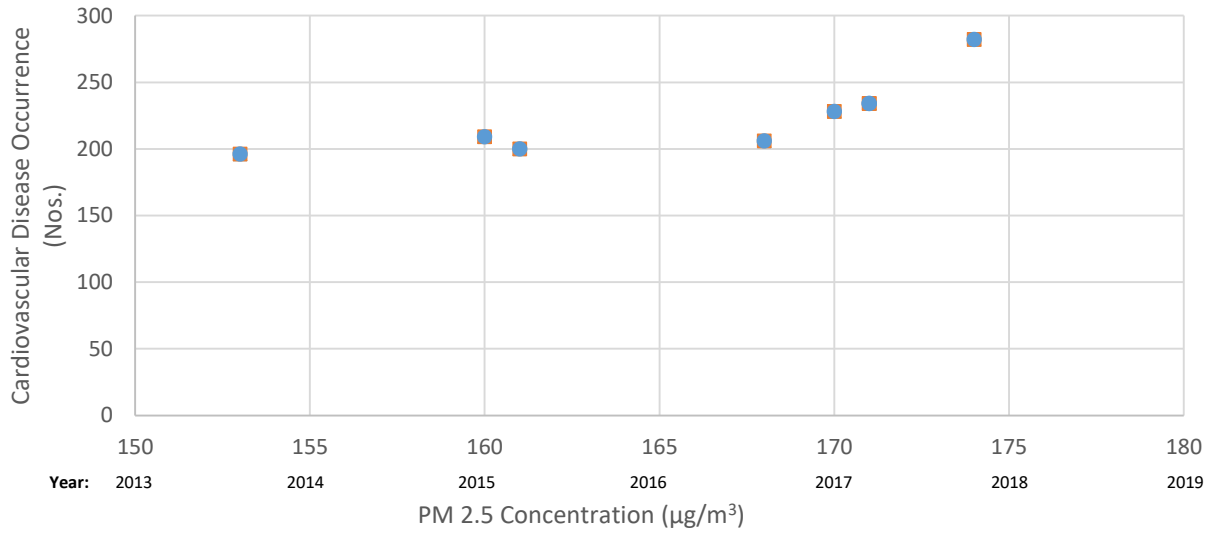


CORRELATIVE ANALYTICS

Urban Techtonix uses Correlative Analytics, which is a highly advanced method of data analysis, which takes a holistic view of specific situations, by evaluating multiple datasets, and investigating the effects that they may have on each other.

By integrating correlative analytical models, Urban Techtonix will help create smarter cities and urban areas by enabling decision makers to understand the relationship between various urban parameters and scenarios.

Correlation between Air Pollution and Public Health



<u>Urban Techtonix applies correlative analytics to make the following assessments:</u>

1. **Identification of causes of air-borne diseases:** The presence and impact of specific air pollutants on the incidence of particular air borne diseases will be assessed. Forecasted information will allow users to predict the occurrence of specific diseases, and take the necessary preventive actions.
2. **Identification of causes of water-borne diseases:** Urban Techtonix will investigate the link between emission of specific water pollutants and the instance of water-borne diseases. Forecasted information will allow users to predict the occurrence of specific diseases, and take the necessary preventive actions.
3. **Assessment of impact of traffic patterns on air quality:** Urban Techtonix will investigate the link between traffic patterns and pollution levels. Forecasted information will allow users to predict the pollution due to traffic levels, and take the necessary preventive actions.

URBAN TECHTONIX DASHBOARD

→ Air → Water → Infrastructure & Land use → Energy

Water Quality & Flood Prediction Assessment:

2017

1. Major Pollutant in Water Bodies : Sewage
2. Major Causes of Pollution : Urban Waste; Industrial Effluent
3. Percentage of Water Bodies exceeding dangerous pollution levels : **73%**
4. Percentage Areas of City in low lying areas : 30%
5. Flooding Risk : **85%**

THE URBAN TECHTONIX ADVANTAGE

Current Situation	The Urban Techtonix Advantage
Decision makers, citizens and urban planners have limited access to urban information. Policies and decisions are currently based on incomplete data, which don't consider historical patterns and predictive trends	This tool will allow decision makers, citizens and stakeholders to take pro-active decisions and formulate policies by accessing and deriving intelligence from historical patterns, real-time data and predictive trends
No consolidated solutions that address the areas of Air Quality, Water Quality, Flood Risk, Infrastructure Health and Energy Efficiency	This tool allows the user to take preventive measures in the areas of Air Quality, Water Quality, Flood Risk, Infrastructure Health and Energy Efficiency
Currently, decision making is only reactive and often delayed in addressing the environmental, energy and infrastructure challenges in an urban area	The tool allows the decision maker to proactively prepare for environmental, energy and infrastructure challenges using advanced data modelling techniques
The use of analytics and assessments have been restricted to academic exercises with limited application in addressing urban issues	The tool offers implementable solutions that can be executed across multiple geographical areas (1 sq.km., 2.5 sq.km., 5 sq.km., 10 sq.km., 50 sq.km and upwards)

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