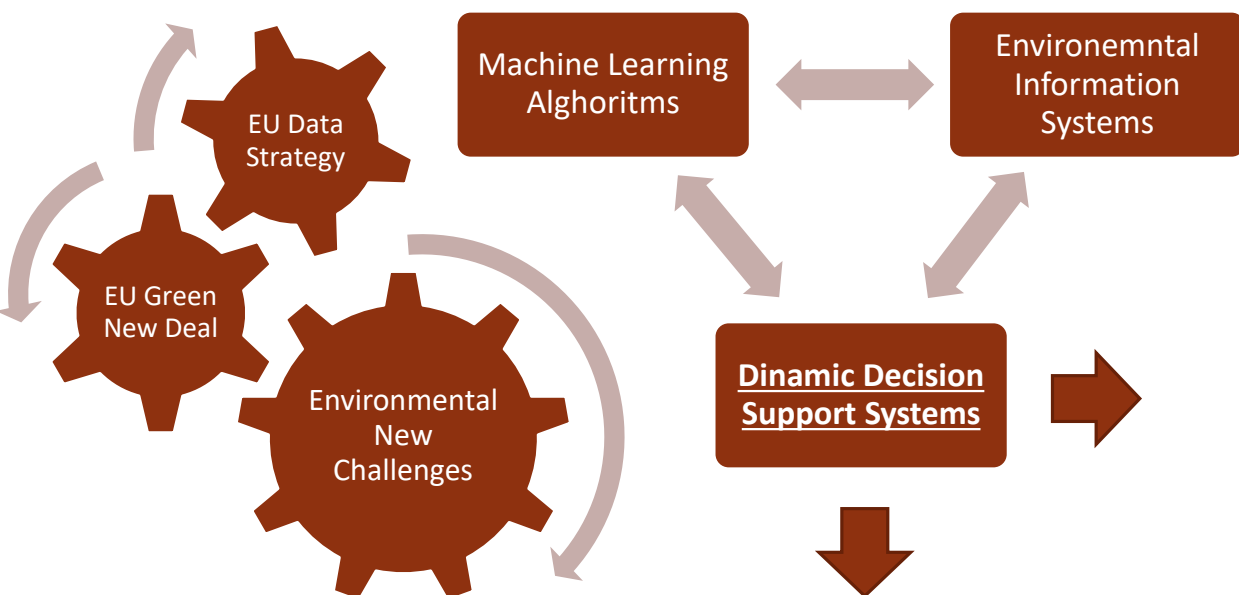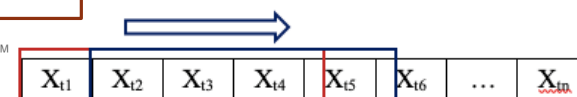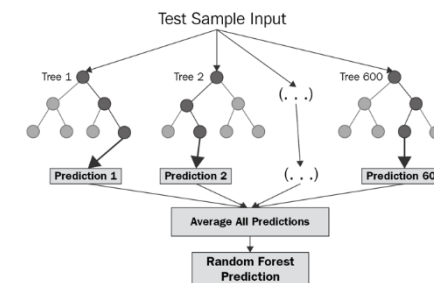# Machine Learning algorithms and environmental decision support systems: a new approach for air quality decision planning

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Machine Learning Alghoritms ⟷ Environemntal Information Systems

EU Data Strategy

EU Green New Deal

Environmental New Challenges

Dinamic Decision Support Systems

- New **dynamic data driven decision support systems**, based on big data and continuous data flows (e.g. Copernicus data flow) in line with the **European Data Strategy** in which access to data and the ability to use it are essential for innovation and growth, in order to increase the transparency of the evidence that underpins policymaking

- Continuous update of data based on a **sliding window approach** and random forest algorithm

- Complex and non-linear phenomena analysis

- **Dynamic processing** and continuous training

python™

X_{t1} | X_{t2} | X_{t3} | X_{t4} | X_{t5} | X_{t6} | … | X_{tn}

The prototype

PM10

Stations

City of Rome

The algorithm

Random Forest

+

Sliding Window approach

Results

Prevision

65% - 80%

Efficiency