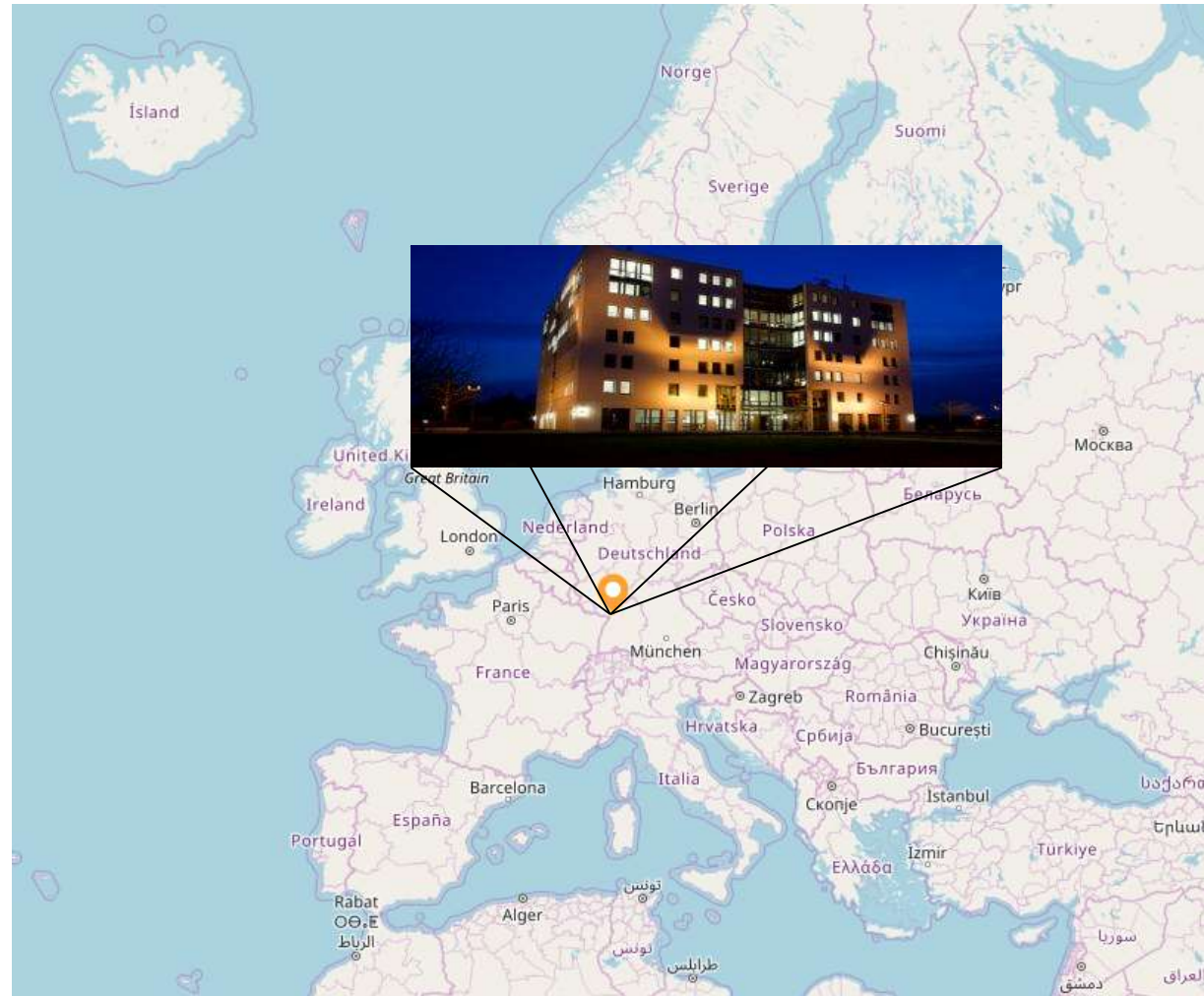# CURTIS – City Simulation Platform

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KIT facts and figures:
9.239 Employees
25.892 Students
€ 851 million

EDF R&D facts and figures:
2,100 employees
€ 572 million

ENERGY RESOURCES AND
DISTRIBUTED GENERATION

ENERGY, CITIES AND TERRITORIES

- Bio-energy
- Geo-technology
- Distributed Generation
  Technologies
- Fuel cells and electrolysis

- Energy planning
- Tool development for
  territories
- Urban systems

- Energy System Analysis
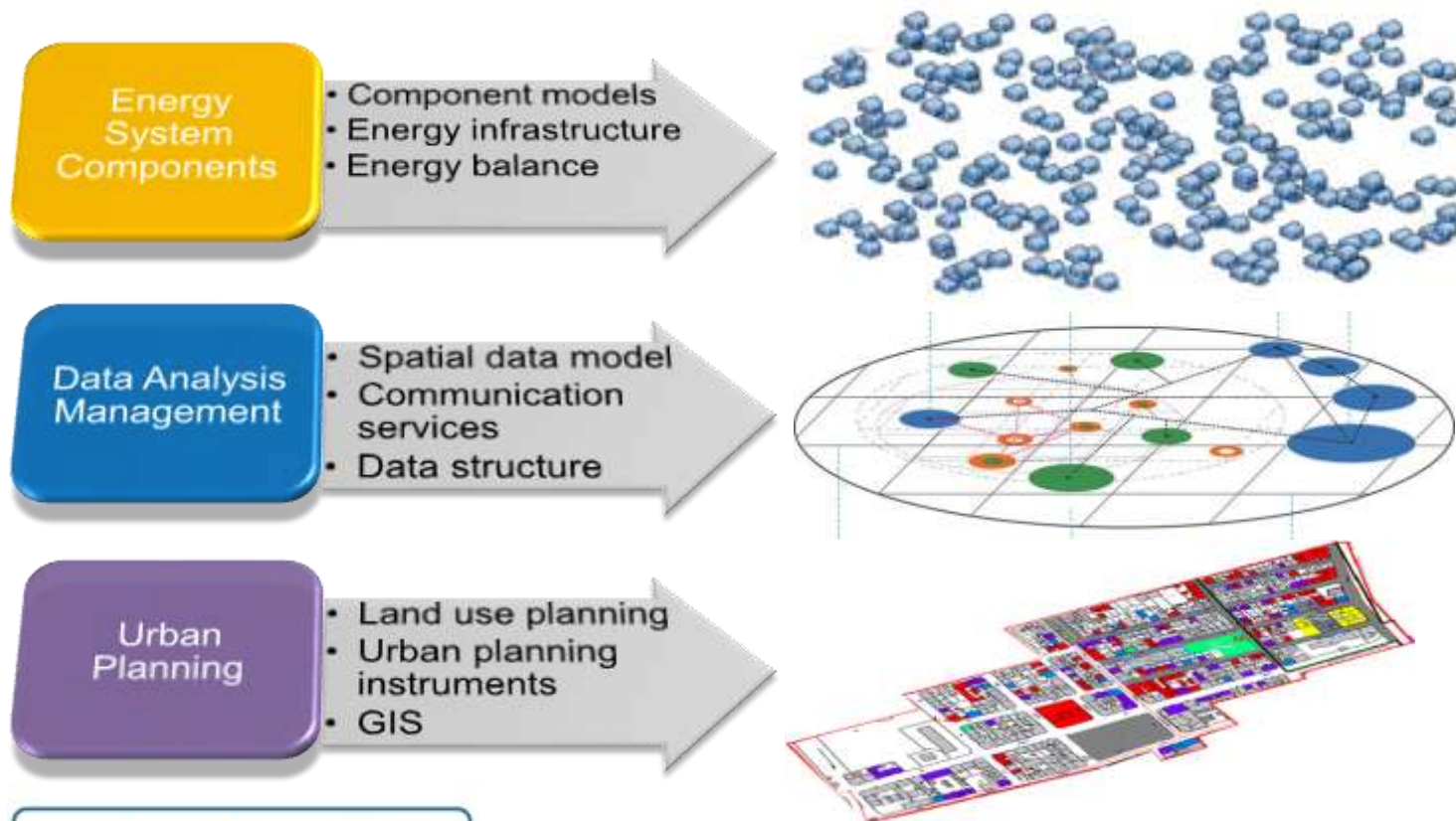 and Climate Change
- Externalities

ECONOMICS OF ENERGY
SYSTEMS AND ENVIRONMENT

European Economic Interest Grouping of
EDF and KIT

120 Employees, 92 Researcher (20 PhD
Students)

40% French, 40% German and 20% other
nationalities

Energy Planning & Geosimulation
30 Researchers, (9 PhD, 8 PhD candidates)

Group is involved in standardization committees, such as the ICA to the OGC

〈 CURTIS - EDF City Platform 〉

Application to simulate Cities

...But not only!

david.blin@eifer.org

History - what happen since 2012

EDF's offer: support the ambitions of the cities

Diagnosis

A complete understanding of the specific issues within each City

› **Define the issues**

Simulation & Prospective

EDF City Platform lets you play with possible futures through direct access to the application

Foreseeing and quantifying the impact of your policies

Expertise

Bespoke advice from EDF experts to support your decision-making

› **Making your vision clearer for the right choice**

Anticipate the side effects of specific decisions

Prioritize actions

Optimize investments

Visualize & Communicate

› Plan

- **History: what happen since 2012**

  Singapour, Lyon, Berlin

- **Demonstration**

  live

- **Architecture**

- **Perspectives**

We deliver an access to CAVI

CAVI: City Application Visualization Interface

EVEREST: APIs
(application programming interface)

EDF City Platform

Models

Domain model for Yuhua (Singapore)

Domain model for Singapore

ENERGIE

Power

Heat

Fuel

+
Production

COUT

Operation

Investment

Power Sold

Total

GES

Emissions

Compensation

LABEL

Green Mark

Green Home
Package

History – MUG for Lyon

Modélisation Urbaine Gerland

Précarité énergétique

Estimate the share of household which are in fuel poverty related to technical and economical context.

Health

Health impact assessment due to Urban Heat Island.

Performance énergétique bâtiment

Energy demand assessment of building stock, related to refurbishment strategies

Energie bas-carbone

Energy assessment of the PV projects, including technical and economical parameters

Impact assessment on a district heating related to urban context, including production cost.

Ilot chaleur

Determine zones significantly warmer in extrem times

E-mobilité et infrastructure

Localisation and technic-economical assessment of charging station for electric mobility

› Plan

- History: what happen since 2012

  Singapour, Lyon, Berlin

- **Demonstration**

  In live

- Architecture

- Perspectives

› Demonstration

screenshot

Video

Live demo

› Plan

● History: what happen since 2012

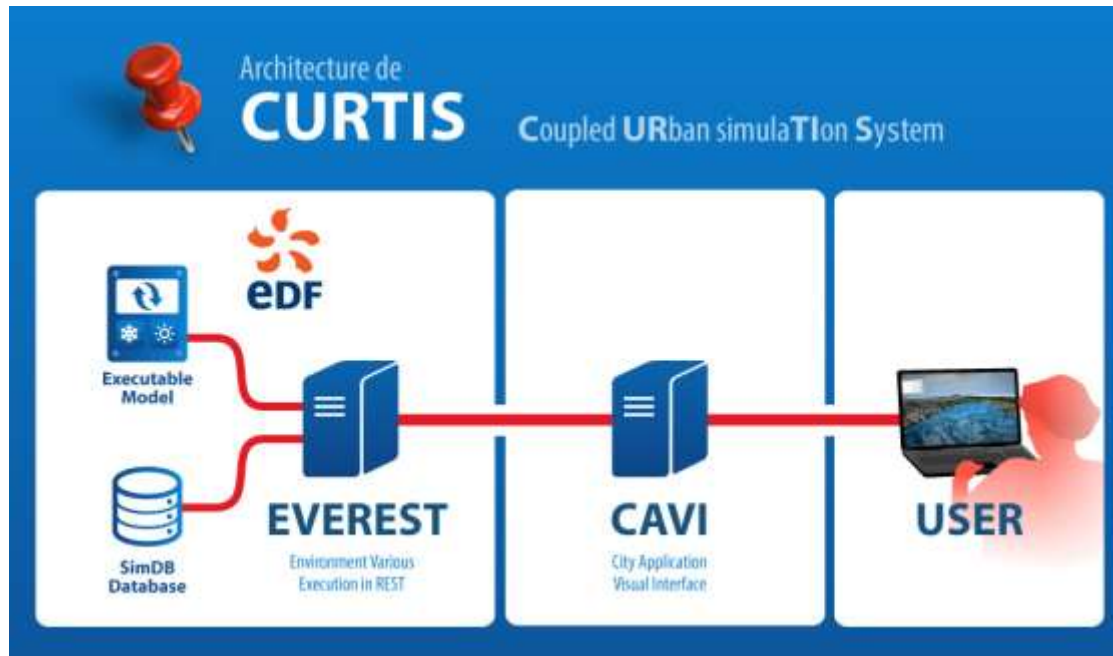   Singapour, Lyon, Berlin

● Demonstration

   In live
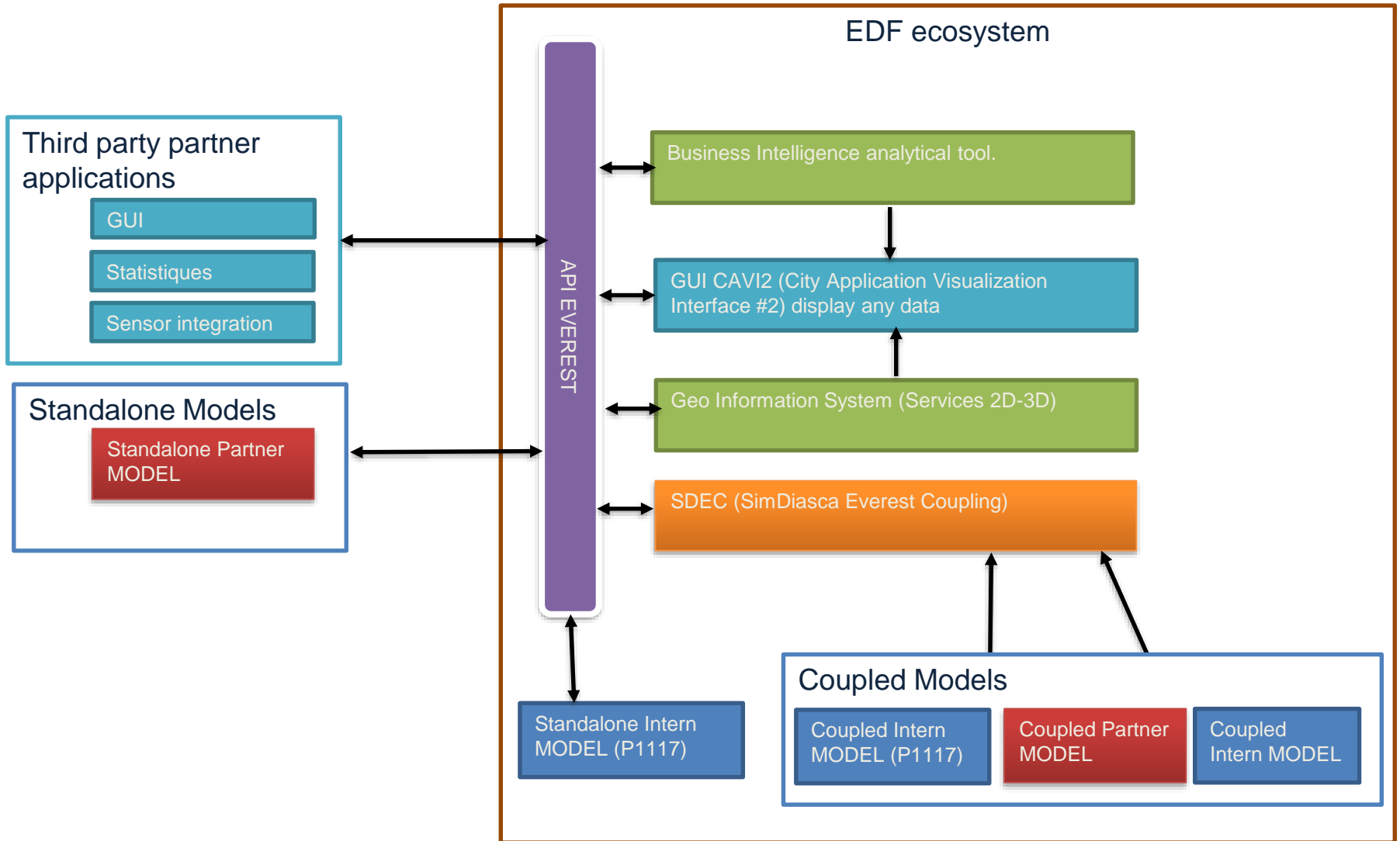
● **Architecture**

● Perspectives

Architecture

Architecture aims to be independant regarding:

- Graphical User Interface (GUI);
- Simulation Engine;
- Urban models (data storage);

An extensible et modular platform

Architecture

EDF ecosystem

API EVEREST

Business Intelligence analytical tool.

GUI CAVI2 (City Application Visualization Interface #2) display any data

Geo Information System (Services 2D-3D)

SDEC (SimDiasca Everest Coupling)

Third party partner applications

- GUI
- Statistiques
- Sensor integration

Standalone Models

- Standalone Partner MODEL

Standalone Intern MODEL (P1117)

Coupled Models

- Coupled Intern MODEL (P1117)
- Coupled Partner MODEL
- Coupled Intern MODEL

Architecture: interfaces

To create a new neighborhood, you need :
- Optionnaly a CityGML
- A MID (model information data) excel files which describes
    - the models default values.
    - Hierarchy of objects.

Everest User club: a base camp for developpers
- on [sharepoint](#):
- A SDK Software Development Kit
 = API + documentation :

For coders of:
- Models
- Graphical User interface
- post treatment (statistics).

› Plan

● History: what happen since 2012

       Singapour, Lyon, Berlin

● Demonstration

       In live

● Architecture

● **Perspectives**

› Perspective

Open City Plateform

Open the platform to other simulation engines : Sim Diasca as a master engine which couples models to the platform
Synthetic Population generation.

3D GeoData models

Import 3D models
Open to other input formats (BIM, etc.)

Data analysis

Improve statistics, become a Geospatial Business
Intelligence tool : reports, uncertainty analysis

Multiplications

Answer to prospects.

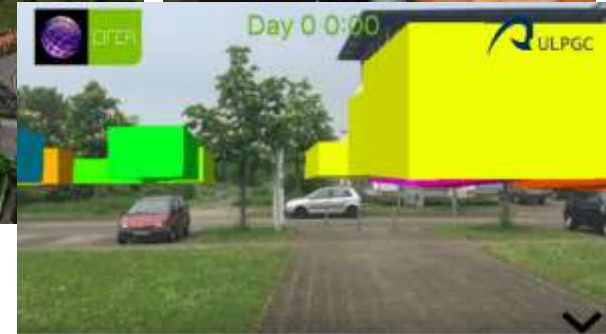# › Perspective

Link to sensors

   Geospatial sensors

Develop graphical use cases

    -   Immersive reality

    -   Augmented reality

Link to other platforms and tools ?

   Like Muse of citégestion, desk from Dalkia,

Business model to be developped

   Improve management of requirements

DANKE, MERCI, THANKS

Toute l'équipe

City Simulation Platform **&** *Smart and Low Carbone City*