# RIDER

## Real-Time Optimization & Energy Efficiency

Offering Overview

# Agenda

▸ Innovation Lab Mission

▸ Customer Needs

▸ The RIDER Offering

▸ Win & Call to Action

▸ Extensions of the RIDER Domain

# Innovation Lab Mission

## RIDER is an Innovation Lab Project

▸ Engage new opportunities by identifying, developing, and promoting **innovative and reusable assets** around data applied to **smarter cities and CAMS** initiatives.

▸ Be the **link** between academics, industry experts and IT.

▸ Domains of expertise
  - **Big Data and Analytics**
  - Integration with the IBM Intelligent Operations Center (**IOC**)
  - High Performance Computing (**HPC**)

IBM
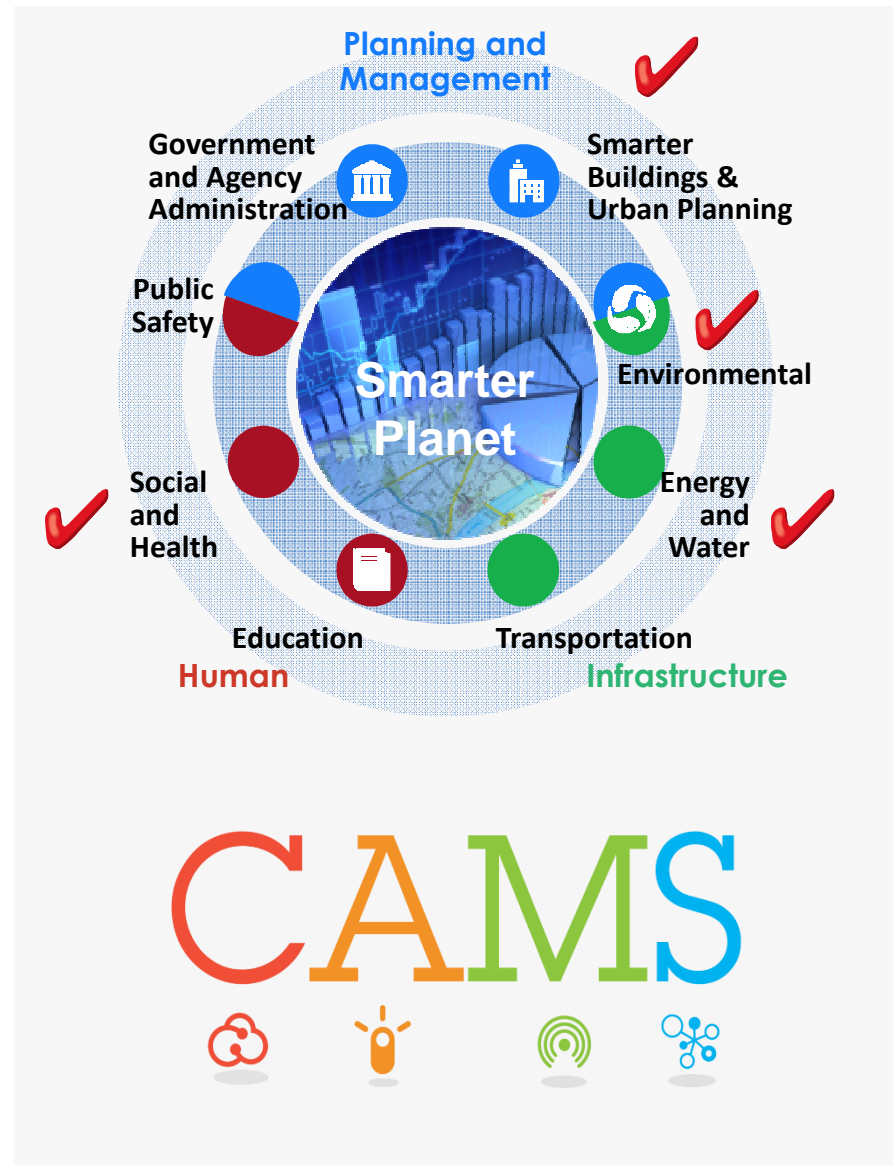
**Data**
**Data**
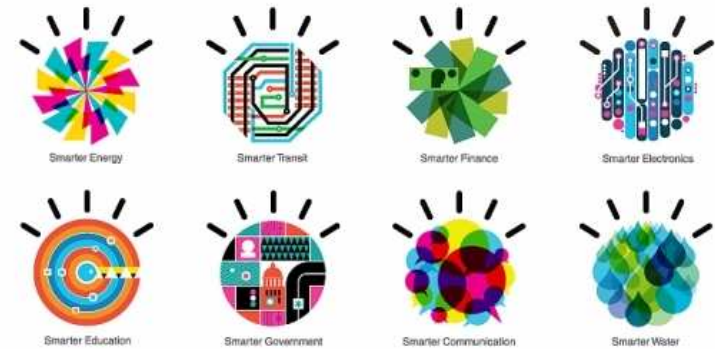# Data
# Data
# Data

## The Internet of Things



The human brains are not good at correlating large amounts of data
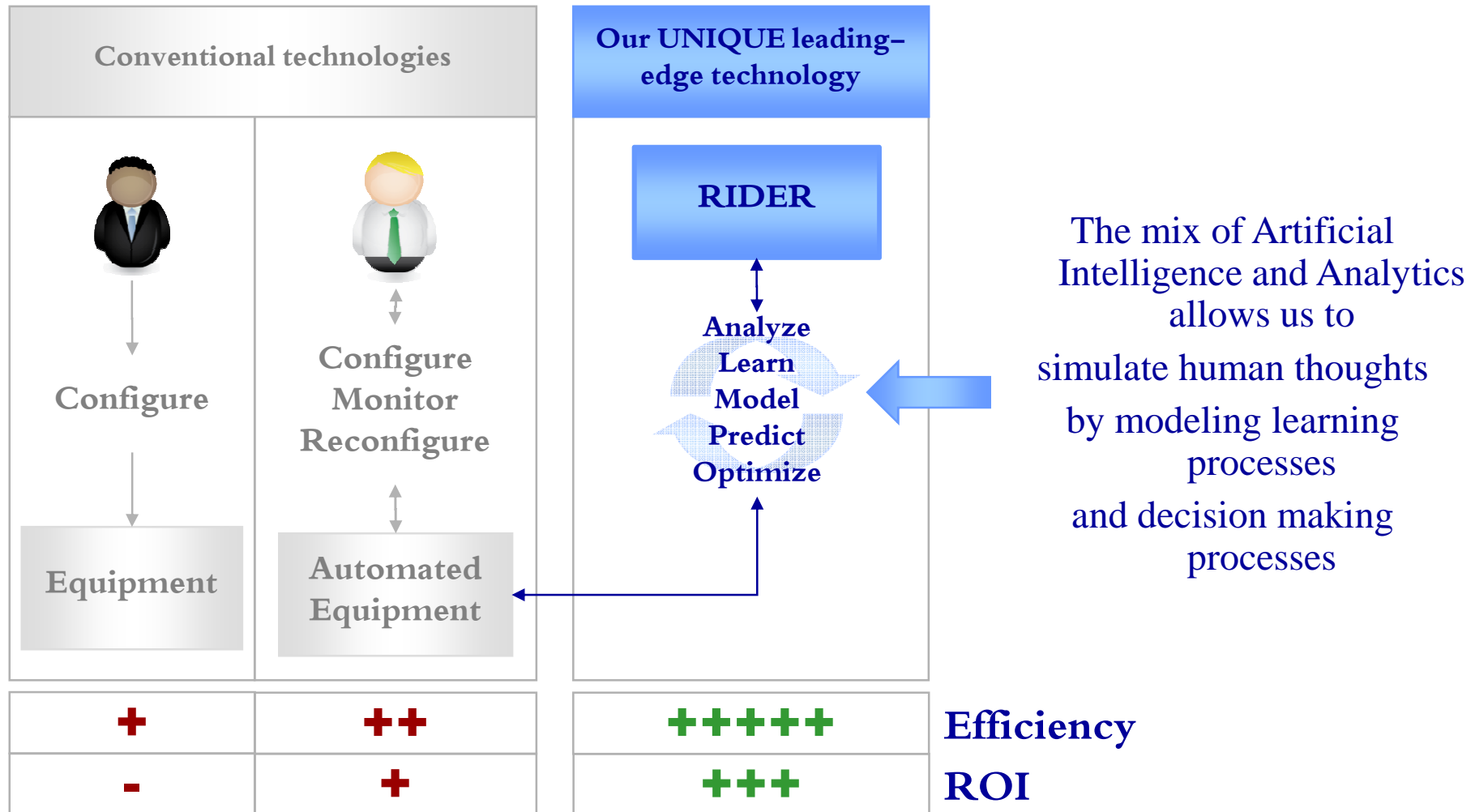
Humans cannot act as fast as and as often as computers do

**50 billion of smart devices**
connected to the Internet
**by 2020**

→ In all domains, we need smart tools to

Analyze
Learn
Model
Predict
Optimize
In Real–Time



intelligence

Wisdom
Knowledge
Information
**Data**

Smarter Energy   Smarter Transit   Smarter Finance   Smarter Electronics

Smarter Education   Smarter Government   Smarter Communication   Smarter Water

# RIDER: A UNIQUE Asset

| Conventional technologies | | Our UNIQUE leading–edge technology | |
|---|---|---|---|
| **Configure** | **Configure Monitor Reconfigure** | **RIDER** **Analyze Learn Model Predict Optimize** | |
| **Equipment** | **Automated Equipment** | | |
| **+** | **++** | **+++++** | **Efficiency** |
| **-** | **+** | **+++** | **ROI** |

The mix of Artificial Intelligence and Analytics allows us to

simulate human thoughts

by modeling learning processes

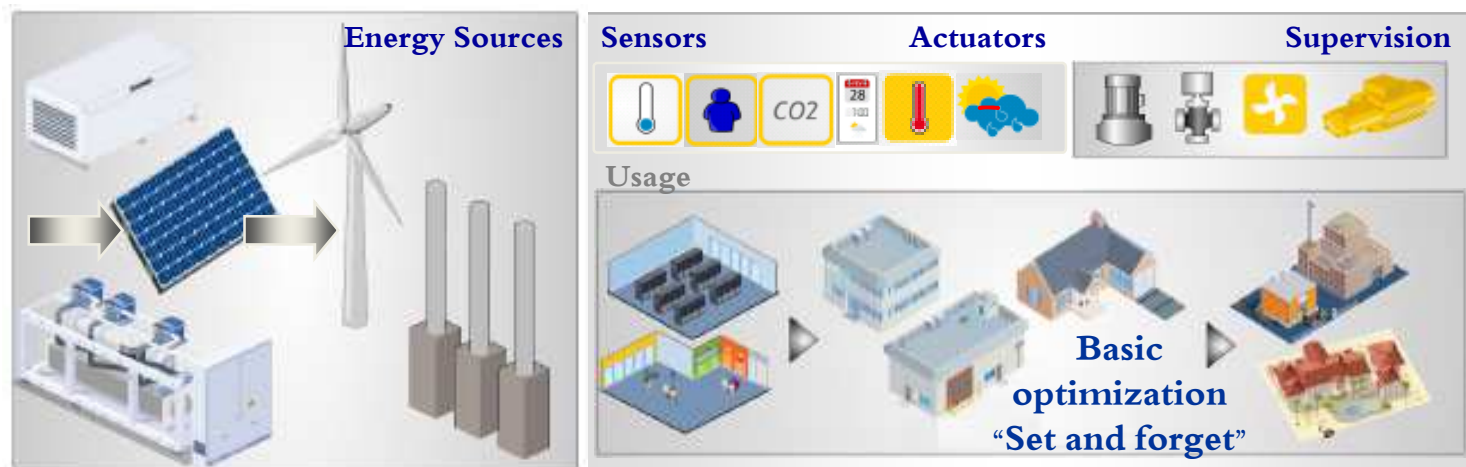and decision making processes

# RIDER for Energy Efficiency in Buildings

▸ **The First Implementation of RIDER** is the successful outcome of a collaborative project carried out at IBM Montpellier together with partners in the region of "Languedoc Roussillon", France.
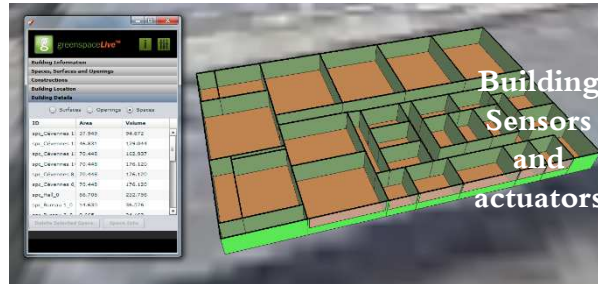
**RIDER**

**Learn**
Classify Spaces
Learn energetic behavior
Build regulation model

**Optimize**
Energy cost
Comfort

Temperature Measures
Motion detection
Energy costs

Real–Time

Temperature Set–Points
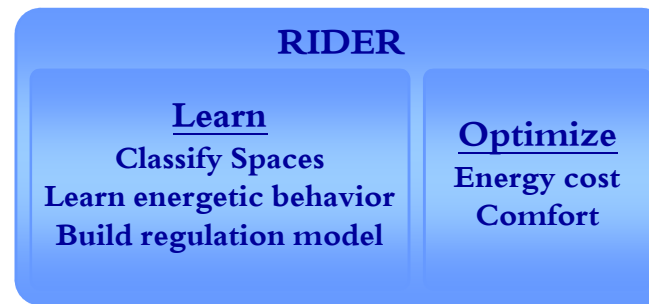
**Benefits**

☝Reduction of energy costs **up to 30%**

☝Reduction of CO2 emissions

☝Improvement of occupants comfort

Energy Sources

Sensors    Actuators    Supervision

CO2    28

Usage

Basic optimization "Set and forget"

Industrial Computing Site in Montpellier

Built in 1964

One zone with offices and meeting rooms



**Building Sensors and actuators** ⟷ **Real-Time** ⟷ **RIDER** Analyze Learn Model Predict **Optimize**
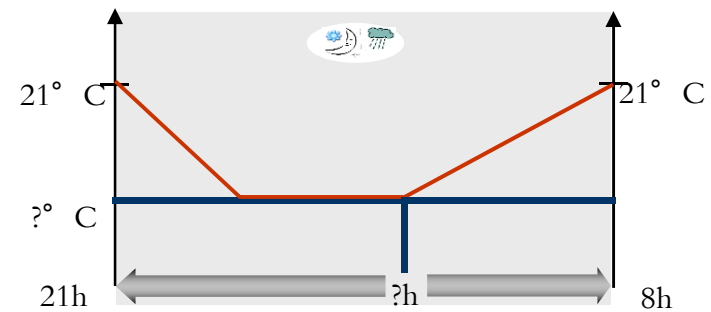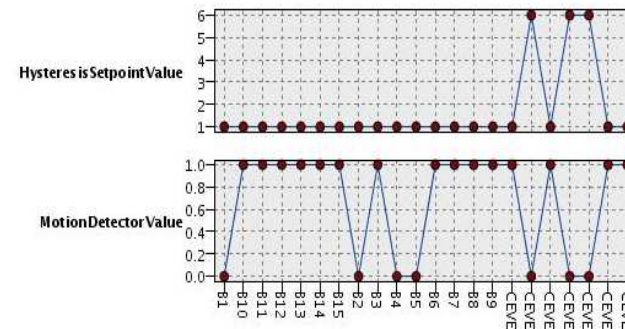
**Day**: **eco versus comfort**

**Night**: **optimal regulation curve**

Learning Phase

RIDER learns the "energetic behavior" of the buildings using easy to catch information on buildings

Operational Phase

RIDER uses the learning phase results to regulate a building at minimal cost taking into account the external temperature

# Déploiement de RIDER dans un lycée de la ville de Lille

**Lycée**

Secteur salles de TP

Secteur salles de cours

Secteur des personnels

Atelier de reprographie

**Capteurs**
Conditions météo
Présence
Température
$CO_2$
Hygrométrie
Luminosité

**Consignes**
Chauffages
Stores
Lumières
Fenêtres et / ou registres d'aération

Analyze
Learn
Model
Predict
Optimize

RIDER

- Optimisation du confort des salles : chauffage et aération
- Optimisation de jour en fonction de l'occupation
- Optimisation de nuit en fonction des conditions climatiques
- + Projet pédagogique

# RIDER Offering = Research Asset + Services

## Asset

▶ **The IBM RIDER Research Asset**

→IP costs required

▶ **IBM SPSS**

→License Required

▶ **IBM DB2 Express C**

▶ **Possible integration with**

- The IOC
- Tririga, and
- Other software

## Services

Consulting

Workshops

Skill transfer

Customization and deployment

Support

# Contacts

If you would like us to know more about RIDER

Contact us

| **Hervé Dardillac** | **Saniya Ben Hassen** | **Olivier Hess** |
|---|---|---|
| **Innovation Lab Manager** | **RIDER lead Architect** | **Innovation Lab** |
| | | **Executive Technical Leader** |
| herve_dardillac@fr.ibm.com | saniya@fr.ibm.com | olivier.hess@fr.ibm.com |
| Office: +33 (0)4 67 34 63 06 | Office: +33 (0)4 67 34 49 73 | Office: +33 (0)4 67 34 48 43 |
| Cell:+ 33 (0)6 74 98 23 84 | Cell:+ 33(0)6 07 90 34 83 | Cell:+ 33 (0)6 72 82 68 95 |