SBA & READY2SERVICES (R2S)

CREATING THE FRAMEWORK TO FOSTER SMART BUILDINGS FOR SMART CITIES CONNECTED & SUSTAINABLE DEVELOPMENT

SMART BUILDINGS ALLIANCE *FOR* SMART CITIES

ACCELERATING TRANSFORMATION

SBA (SMART BUILDINGS ALLIANCE FOR SMART CITIES) WAS CREATED IN 2012 WITH THE FOLLOWING OBJECTIVES IN MIND :

→ **imagine** & **design** the conditions for implementation and development of smart buildings for smart cities, by meeting the challenges of :

- Digital transformation
- Sustainable development
- Emergence of new business models
- Developing a service orientated, user centric approach for smart buildings & smart cities

→ **support stakeholders** involved in these transitions

→ **foster the development of new ecosystems** leveraging innovation and new services in the context of sustainable development business models.

→ **help to establish a Smart building & Smart City sector of excellence** capable of disseminating all around the world

SMART BUILDINGS ALLIANCE *FOR* SMART CITIES

COLLECTIVE INTELLIGENCE, TRANSVERSALITY, DIVERSITY OF STAKEHOLDERS

250 Members*

→ The development of new digitally enhanced services in buildings and cities will become possible when **traditional silo approaches are overcome.**

→ SBA promotes the **use of interoperable solutions, based on open standards**. It is on this condition that new value added propositions based on sustainable business models will be developed for the different building and city stakeholders.

- → CITIES & LOCAL AUTHORITIES
- → DEVELOPERS, REAL ESTATE OWNERS, SOCIAL LANDLORDS
- → ARCHITECTS, ENGINEERING OFFICES, CONSULTANTS
- → INSTALLERS, INTEGRATORS
- → EQUIPMENT MANUFACTURERS, SOLUTION PROVIDERS
- → UTILITIES
- → SERVICES
- → TELECOM, NETWORKS, IT
- → BANKING & INSURANCE
- → STARTUPS
- → TRAINING ORGANIZATIONS, UNIVERSITIES
- → TRADE UNIONS, ASSOCIATIONS
- → ...

* Number of member organizations & corporations (30/4/2018)

THE HONORARY MEMBERS 1/2

THE HONORARY MEMBERS 2/2

THE MEMBERS 1/2

▪ ABB ▪ ACCENTA ▪ ACCOR INVEST ▪ ACOME ▪ ACR ▪ ACS2I ▪ ACTIWATT ▪ ADEUNIS RF ▪ AIRELIOR FACILITY MAGEMENT ▪ AIRRIA ▪ ALCANTE ▪ ALIAXIS ▪ ALLIANZ REAL ESTATE FRANCE ▪ ALPHA RLH ▪ ALTAREA COGEDIM ▪ ALTECA ▪ ALTECON ▪ AN2V ▪ ANC TECHS ▪ APILOG AUTOMATION ▪ ARC INFORMATIQUE ▪ ARCHIMEN ▪ ARCOM Energie Service ▪ ARISTOTE ▪ ARKHENSPACES ▪ ARP ASTRANCE ▪ ARTELIA ▪ ASCAUDIT ▪ ASSOCIATION HQE ▪ ASSYSTEM ▪ ATC France ▪ AURI ZONE ▪ AVIDSEN ▪ AXIANS ▪ AZUR SOFT ▪ B.tib ▪ BAALBEK MANAGEMENT ▪ BARBANEL ▪ BCM ENERGY ▪ BEEBRYTE ▪ BG INGENIEURS CONSEILS ▪ BIRDZ ▪ BNP PARIBAS REAL ESTATE ▪ BORDEAUX METROPOLE ▪ BOUYGUES CONSTRUCTION ▪ BOUYGUES ENERGIES & SERVICES ▪ BOUYGUES IMMOBILIER ▪ CABA ▪ CAILLOU VERT CONSEIL ▪ CAISSE DES DEPOTS ▪ CAPENERGIES ▪ CCF ▪ CCI NICE COTE D'AZUR ▪ CDU Immobilier ▪ CEA TECH ▪ CERTIVEA ▪ CISCO ▪ CIT RED ▪ CITYLITY ▪ CLUSTER HBI ▪ CONNEK + CONSEIL ▪ CONSEIL DE DEVELOPPEMENT METROPOLE DE LYON ▪ COSTE ARCHITECTURES ▪ COTHERM ▪ CR SYSTEM ▪ CSTB ▪ CYMBI.O ▪ CYRISEA ▪ DALKIA ▪ DASSAULT SYSTEMES ▪ DATA SOLUCE ▪ DECAYEUX ▪ DECELECT ▪ DELTA DORE ▪ DEMATHIEU BARD ▪ DIS INGENIERIE ▪ DISTECH CONTROLS ▪ DOVOP Développement ▪ E.ON ▪ E'NERGYS ▪ EASY SMART BUILDING ▪ ECONOCOM ▪ EDF - BRANCHE COMMERCE ▪ EDF OPTIMAL SOLUTIONS ▪ EFFIPILOT ▪ EIFFAGE ENERGIE ▪ ELITHIS ▪ EMBIX ▪ EN ACT ARCHITECTURE ▪ ENERGISME ▪ ENGIE AXIMA ▪ ENGIE INEO ▪ ENLIGHTED ▪ ENOCEAN ▪ ENSI POITIERS ▪ FAYAT ▪ FFDomotique ▪ FIFTHPLAY ▪ FONCIERE DES REGIONS ▪ GA2B ▪ GEMALTO ▪ GETEO ▪ GETRALINE ▪ GFI INFORMATIQUE ▪ GLI - GROUPE EKIUM ▪ GRAND PARIS HABITAT ▪ GRDF ▪ GREENERWAVE ▪ GROUPE BETOM - IDEAM SOLUTIONS ▪ ▪ ▪

THE MEMBERS 2/2

HABITAT76 ▪ HAGER ▪ HAVR ▪ HENT CONSULTING ▪ HESTIA INNOV ▪ HONEYWELL ▪ HSBC ▪ HXPERIENCE ▪ HYDRELIS ▪ IBM ▪ ICADE ▪ ICONICS ▪ IDEX ▪ ILOGS FRANCE ▪ IMMOBILIERE 3F ▪ IMPERIHOME ▪ INEX ▪ INGETEL BET ▪ INNOVATION PLASTURGIE COMPOSITES ▪ INSITEO ▪ INTENT TECHNOLOGIES ▪ IP2I ▪ IPORTA ▪ ISTA ▪ KALIMA DB ▪ KARDHAM CONNECT ▪ KEO FLUIDES ▪ KOONTOO ▪ KORUS ▪ L'IMMOBILIERE IDF ▪ LE RESIDENTIEL NUMERIQUE ▪ LEGRAND ▪ LEON GROSSE ▪ LES COMPAGNON DU DEVOIR ▪ LEXCITY ▪ LM INGENIERIE ▪ LONMARK France ▪ LUTRON ELECTRONICS ▪ LUXENDI ▪ MBA INGENIERIE ▪ MCS SOLUTIONS ▪ MEDIACONSTRUCT ▪ MICROSENS ▪ MIOS ▪ NEOBUILD ▪ NETATMO ▪ NETISSE ▪ NETSEENERGY ▪ NEXITY ▪ NEXTDOOR ▪ NOVAL ▪ NXP ▪ OCCITALINE ▪ OGER INTERNATIONAL ▪ OGGA ▪ OPEN MANAGEMENT ▪ ORANGE ▪ OVERKIZ ▪ OYA LIGHT ▪ OZE ENERGIES ▪ PARTAGER LA VILLE ▪ PHILIPS LIGHTING ▪ PICHET ▪ PLACE DES ENERGIES ▪ PLAN BATIMENT DURABLE ▪ POLE TES ▪ POLESTAR ▪ POSTE IMMO ▪ PREMIUM CONSEIL ▪ PRESTANTENNES ▪ PRIVA ▪ PROMOTELEC SERVICES ▪ PROXISERVE ▪ QARNOT COMPUTING ▪ QOS SOLUTION ▪ QUALICONSULT ▪ QUALITEL ▪ QUINTEA ▪ RABOT DUTILLEUL NACARAT ▪ RENESAS ▪ RESOLVING ▪ REXEL ▪ ROBEAU ▪ S2I COURANT FAIBLE ▪ SANTECH ▪ SCHNEIDER ELECTRIC ▪ SE3M ▪ SEMTECH ▪ SERCE ▪ SFEL ▪ SFR ▪ SIBCO ▪ SIEMENS ▪ SIRLAN ▪ SLAT ▪ SMART CUBE ▪ SMARTENON ▪ SMART USE ▪ SMART HAB ▪ SNACG ▪ SNAPP ▪ SNEF Connect ▪ SOMFY ▪ SPIE ▪ SPIE BATIGNOLLES ▪ SPINALCOM ▪ SPL LYON CONFLUENCE ▪ STUDINNOV ▪ SXD ▪ SYLFEN ▪ SYSTECHMAR ▪ TECHNAL ▪ TECHNILOG ▪ TEVOLYS ▪ TRIDONIC ▪ TRYO2SYS ▪ UBIANT ▪ ULIS ▪ UNIBAIL-RODAMCO ▪ UNIVERSITE DE RENNES 1 ▪ URBAN PRACTICES ▪ URBEST ▪ VALLOGIS ▪ VEOLIA ▪ VERTUOZ BY ENGIE ▪ VINCI ENERGIES France ▪ VINCI FACILITIES ▪ WAGO ▪ WEBINAGE ▪ WICONA ▪ WISEBIM ▪ WIT ▪ Z#BRE ▪ ZEPLUG

THE BUILDING REVOLUTION

Digital transition introduces « smartness » in the building

Buildings need to adapt to the new rules of the digital world and become :

→ **User** centric
→ **Service** oriented
→ Connected & **communicating**
→ Open & **secured**

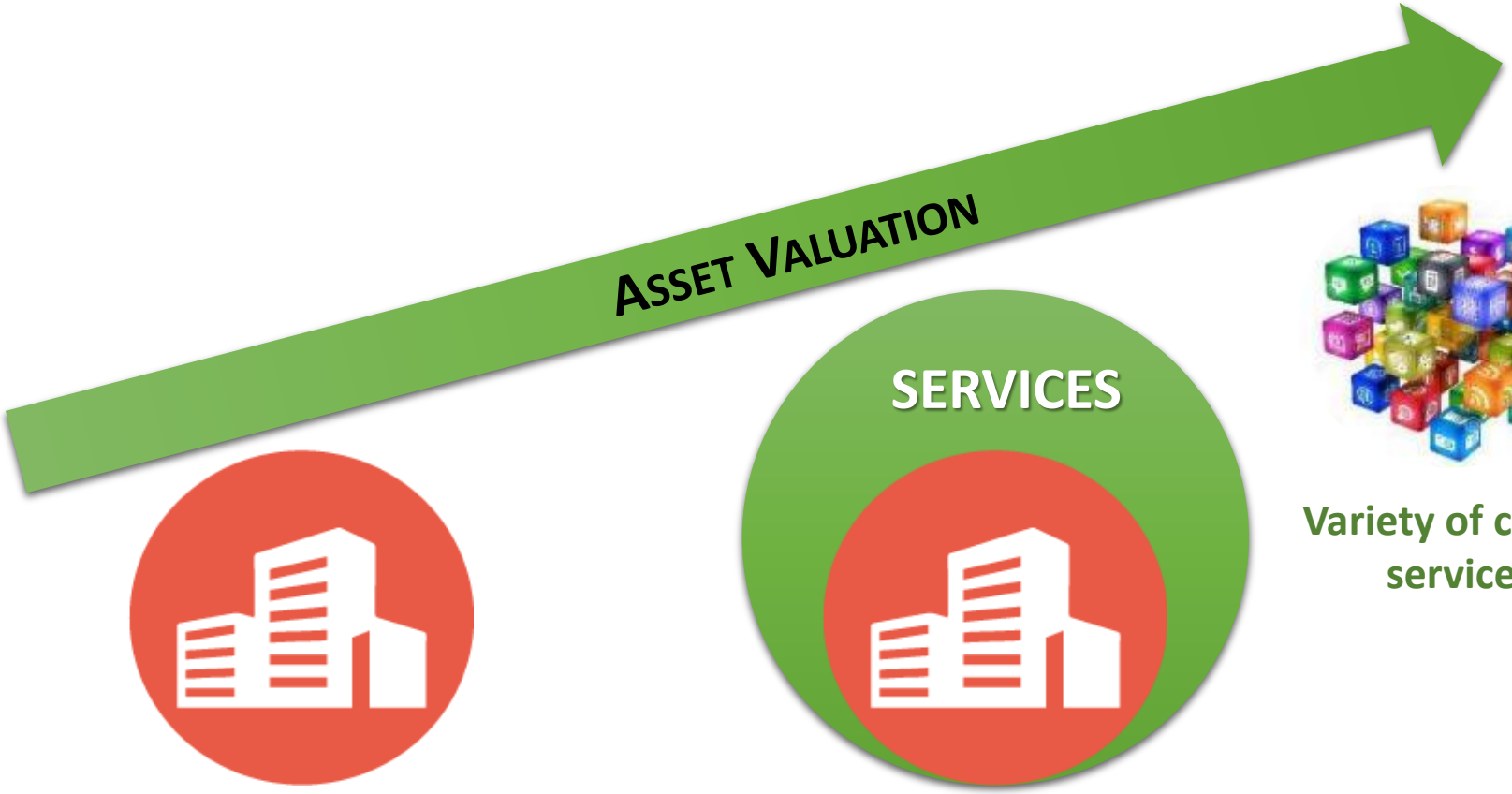
Buidlings are subject to the laws of the internet era

→ **Usages** : variety of choices, increased personalization, ease of access to services, share economy…
→ **Technology** : permanent innovation, IP standards, systems interoperability …

BUILDINGS BECOME « SERVICE PLATFORMS »

INCREASING VALUE TROUGH SERVICES

BUILDINGS BECOME SERVICE PLATFORMS, THEIR VALUE IS LINKED TO THE QUALITY & DIVERSITY OF SERVICES AVAILABLE



Variety of choices and customization of services for each building user

Traditional Real Estate economy based on location

New Real Estate economy based on usage value

SMART BUILDINGS ARE CENTRAL PIECES OF THE SMART CITY

BEYOND LIVING & WORKING SPACES, A CROSSROAD OF INTERACTIONS & SERVICES FOR THE CITY AND ITS INHABITANTS

Activities : business, retail, education, health…

Buildings : offices, shops, public services, residential …

Mobility : transportation, traffic, parking

Energie, fluids, waste …

Public infrastructures : networks, lighting, security…

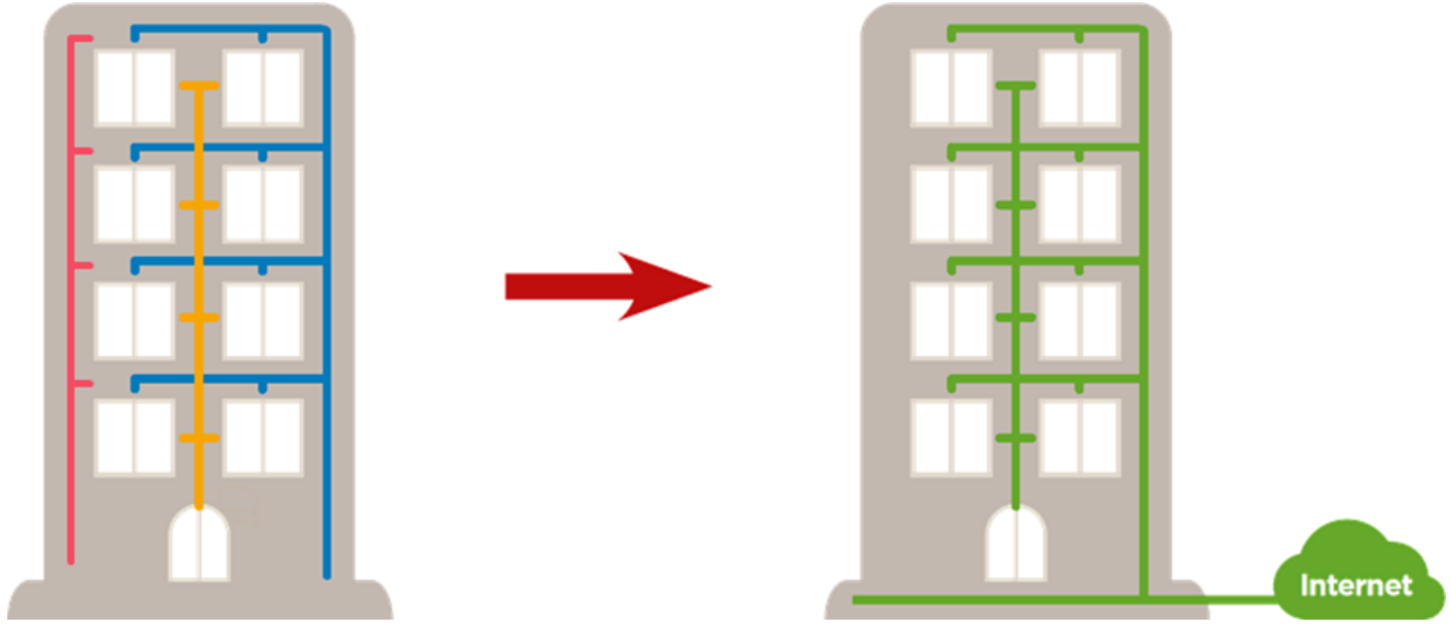
SMART CITY – SMART CITIZENS

READY2SERVICES REFERENCE FRAMEWORK

PRINCIPLES UNDERLYING « READY2SERVICES » APPROACH (1)

→EXISTENCE OF AN ETHERNET – IP NETWORK FOR BUILDING COMMUNICATION SERVICES

This is the infrastructure of the building's 4th fluid (data), based on a standard and universal data transport protocol : Ethernet – IP. This infrastructure includes, wired or wireless connectivity for the transportation of data, as well as network management systems, routing and logical organization of data flows and network services for the building.



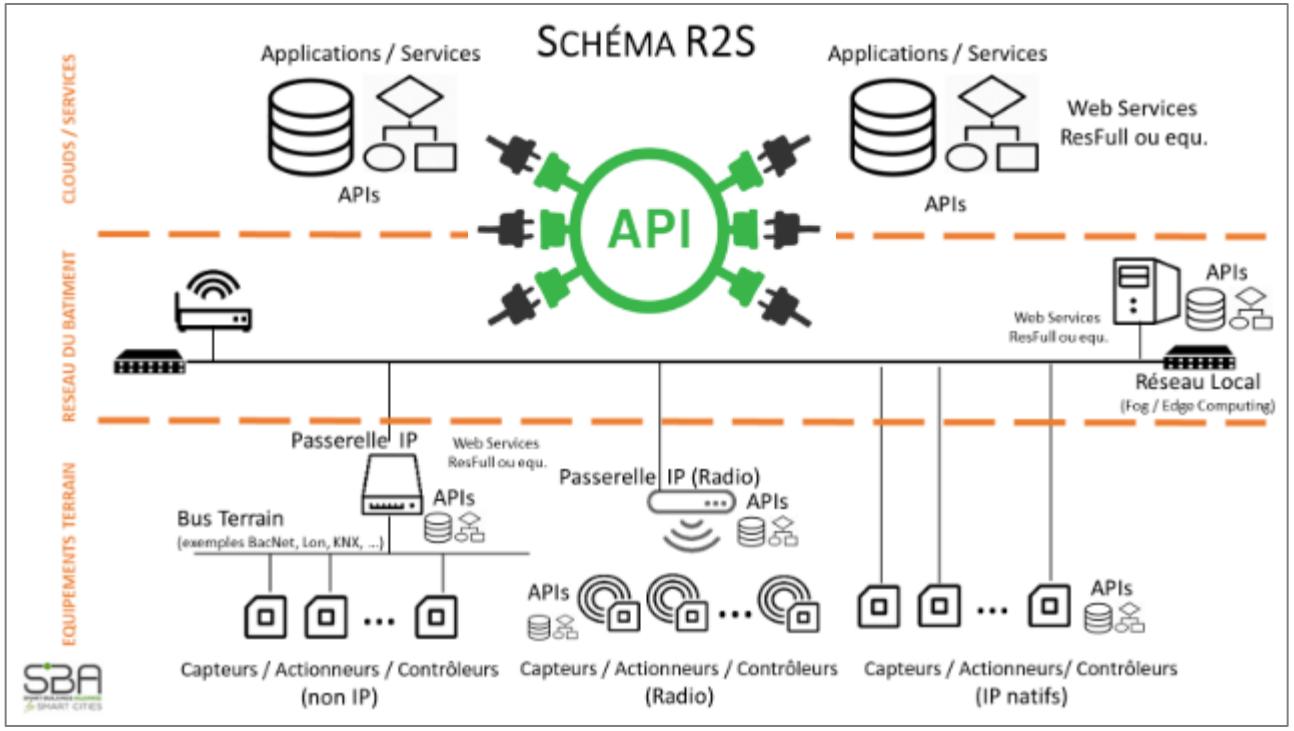
Multiple Field Networks

Converged Network

PRINCIPLES UNDERLYING « READY2SERVICES » APPROACH (2)

→ OPEN ACCESS TO DATA AND INTEROPERABILITY OF SYSTEMS

Through the use of open APIs (Application Programming Interfaces) allow easy access to data produced and / or used by the connected devices and related services, whether the services are available locally and / or through the cloud. Insure existence of documentation and licenses of use are available and accessible to third parties.



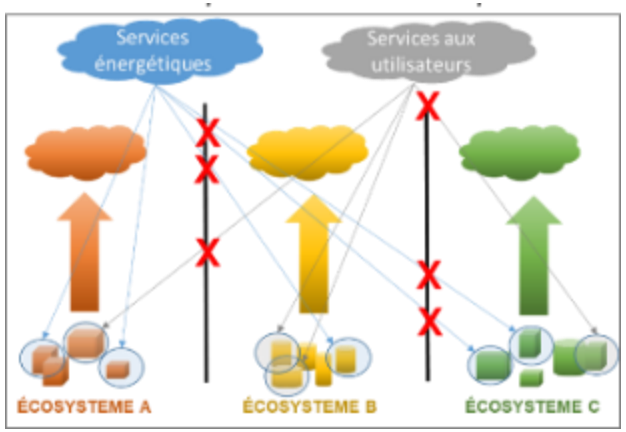
API Documentation & user licences

PRINCIPLES UNDERLYING « READY2SERVICES » APPROACH (3)

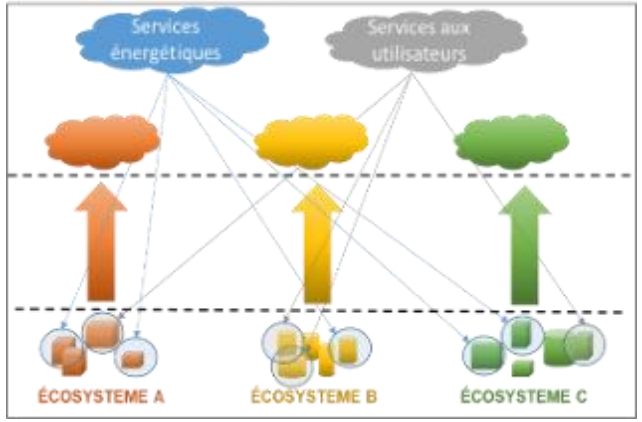
→ MODULAR ARCHITECTURE BASED ON 3 INDEPENDANT LAYERS

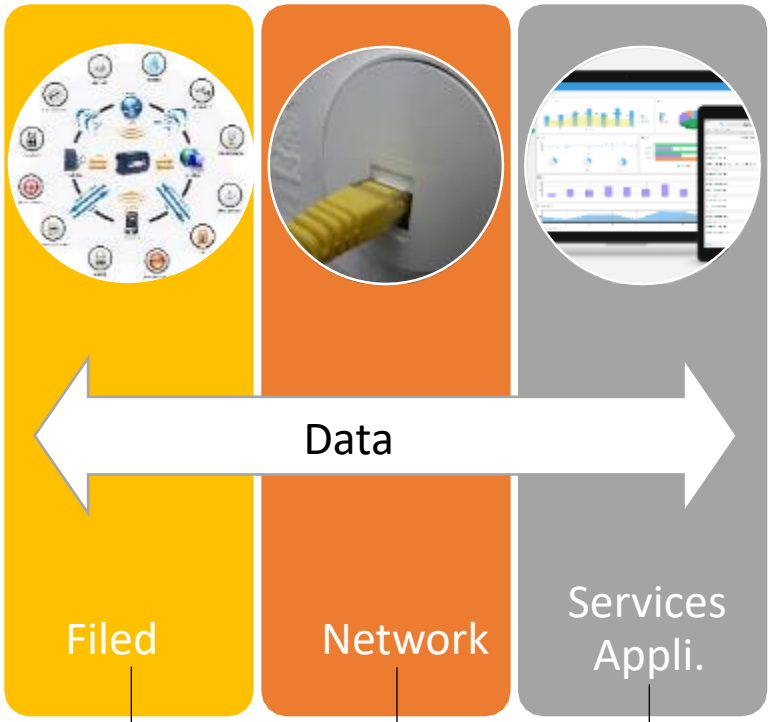
Allowing the interchangeability of each layer, without modifying the other two, so that a service does not impose a hardware ecosystem or a dedicated network infrastructure and vice versa

Silo model



3 independant layer model





« NETWORK INFRASTRUCTURE » LAYER

Ethernet IP Building network

« CONNECTED EQUIPEMENT» LAYER

sensors, actuators, controlers, ICT equipement …

« SERVICES /APPLICATIONS » LAYER

where building data is stored and processed to provide services to users

PRINCIPLES UNDERLYING « READY2SERVICES » APPROACH (4)

→ A TRUSTED FRAMEWORK FOR DIGITAL SECURITY AND DATA PROTECTION

Making accessible and controllable building functions locally or remotely via digital tools, requires to take into account security policies to systems (equipment, networks, services, data), as well as data protection procedures (data administration policy, new European regulation on data protection : GDPR ...).

PRINCIPLES UNDERLYING « READY2SERVICES » APPROACH (5)

→ READY2SERVICES PROVIDES THE BUILDING WITH ESSENTIAL QUALITIES TO BECOME AN OPEN SERVICE PLATFORM*

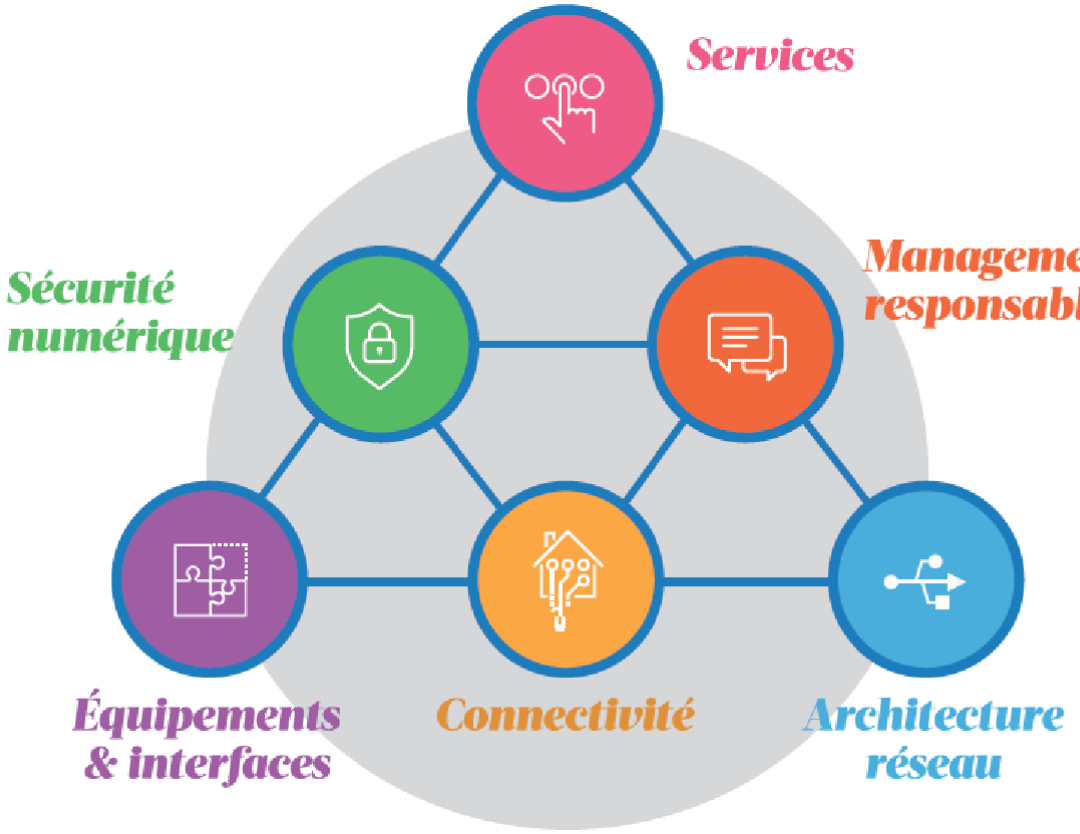
Energy Services : real-time monitoring, archiving and logging of building energy profile, provision of dashboards and invoices, analysis of the energy profile, prediction and decision support, opening of the building to smart grid.

Building Services : communication services for common areas, multi operation management, building maintenance, building safety and security, control of comfort parameters, well-being and health (temperature, humidity, lighting, air quality, sound levels ...

User Services : private areas communication services, location-based services, signaling and guidance, dynamic information display, real-time management of shared resources: meeting and video conference rooms, parking spaces, coworking spaces, relaxation areas, ...

** As part of the R2S labeling process for non-residential buildings, an energy monitoring service using the R2S infrastructure is required upon delivery of the building*

THE FRAMEWORK FOR CONNECTED & COMMUNICATING BUILDINGS



Services to building stakeholders

Governance

Technical Principles

SBA SMART BUILDINGS ALLIANCE for SMART CITIES

CertiVéA

Alliance HQE GBC FRANCE

CHARTE DU BÂTIMENT CONNECTÉ, BÂTIMENT SOLIDAIRE ET HUMAIN

Liberté · Égalité · Fraternité RÉPUBLIQUE FRANÇAISE

MINISTÈRE DE LA COHÉSION DES TERRITOIRES

POLITIQUE DE LA VILLE

Signed by over **100** Industry stakeholders

THE 6 PILARS OF « R2S » LABEL

CONNECTIVITY

Ensure efficient building connectivity capabilities to external telecom networks

- Efficient Wi-Fi & GSM coverage
- Cabling redundancy, flexibility, access protection …

NETWORK ARCHITECTURE

Ensure seamless data flows within the building
Describe buildings' « 4th fluid » network

- Define the buildings' converged IP network
- Set the conditions to efficient management of building network and building data flows

THE 6 PILARS OF « R2S » LABEL

INTEROPERABILITY

Establish the conditions to foster interoperability between independant systems

- Set the framework for building systems interoperability conditions (Open API, webservices …)
- Promote BIM as a central « operations » tool for building systems

DIGITAL SECURITY

Secure building systems
Protect building & personnal data

- Protect building systems against risks, vulnerabilities and attacks
- Strengthen the protection of occupants' personal data

THE 6 PILARS OF « R2S » LABEL

SUSTAINABLE MANAGEMENT

Set the framework for best of breed sustainable project management practices

- Framework to monitor project management, project costs & project planning
- Commissioning process of building systems

SERVICES

Foster development of new services for the building and its occupants

- Increased comfort, safety and quality of user experiences
- Optimization of building maintenance and operations

Example of services

MAINTENANCE / EXPLOITATION **GESTION DURABLE DES ÉQUIPEMENTS** **(ASSET AND FACILITIY MANAGEMENT)**	• Multi-technical maintenance • Facility management and operation • Managing facility life cycles
ENERGIE **(ENERGY MANAGEMENT)**	• Energy management • Smart grid: reacting to demand
AMÉNAGEMENT DES ESPACES **(SPACE MANAGEMENT)**	• Space planning • Transforming the use (type) of a building • Real estate management
SERVICES AU BÂTIMENT **(BUILDING SERVICES)**	• Waste management, Cleanliness management • Safety (risks / injury) • Security (risks of aggression and theft)
SERVICES AUX OCCUPANTS **(OCCUPANCY SERVICES)**	• General services, Caretaker • Inter-company restaurant • Sharing assets
BIEN ÊTRE / SANTÉ **(INDOOR ENVIRONMENT QUALITY)**	• Comfort • Health • Home support

BENEFITS OF SBA'S « R2S » APPROACH

PROVIDE MORE SERVICES

OPTIMIZE OPERATIONS

IMPROVE FLEXIBILITY OF USAGE

INCREASE PROPERTY ATTRACTIVENESS

R2S CERTIFIED LABEL FOR BUSINESS PREMISES DELIVERED BY CERTIVEA

A label issued by Certivea for business premises : offices, shops, hotels, sports equipment ... meeting the criteria of SBA's Ready2Services reference framework

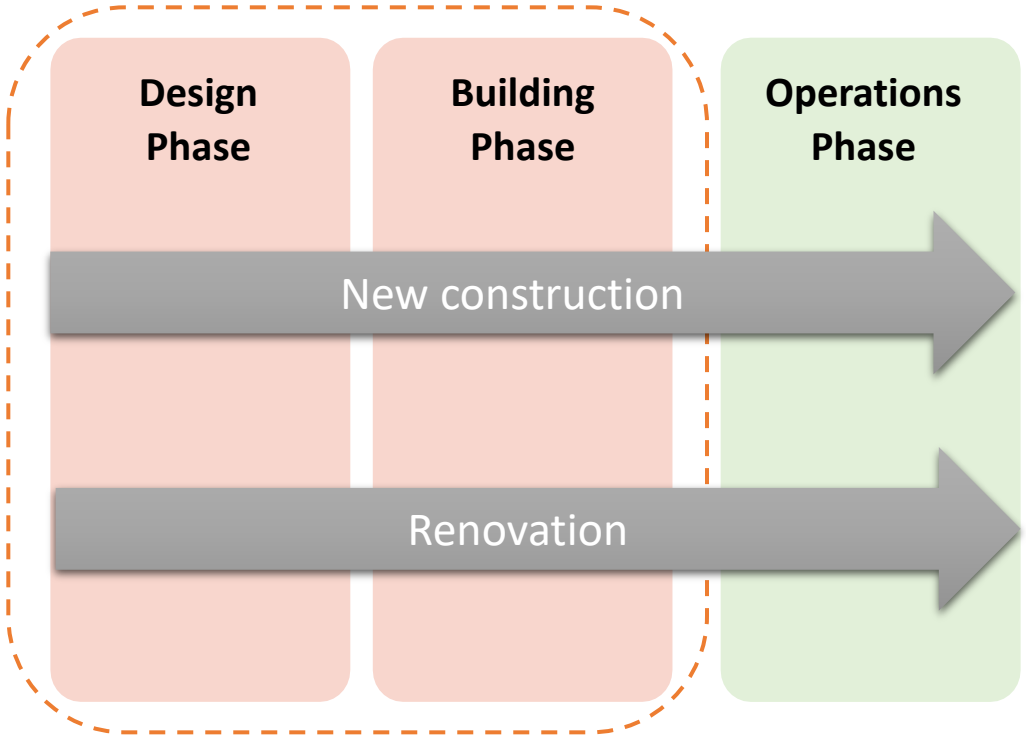
CertiVéA
Améliorons la qualité de ville

OFFICIAL LAUNCH : JUNE 2018

LABEL R2S READY2SERVICES
DÉLIVRÉ PAR CERTIVEA

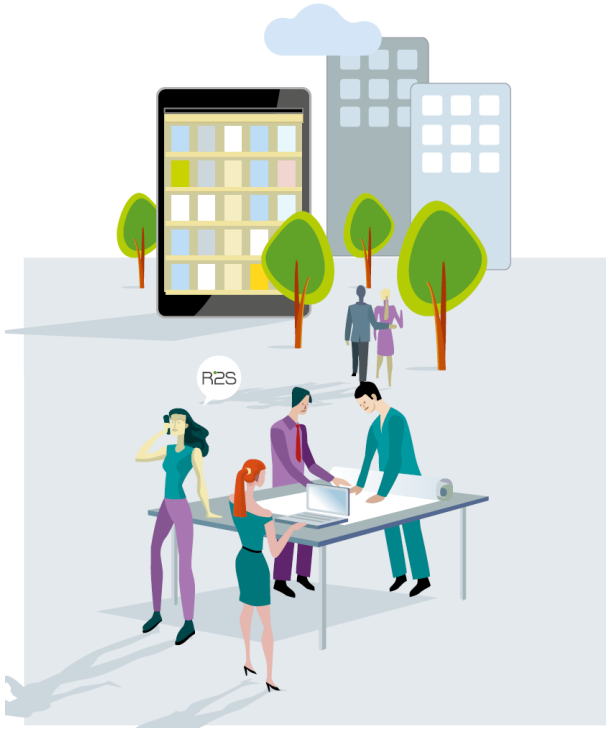
Stakeholders

- Construction/Renovation : building developpers real estate owners,
- Operations : real estate owners, occupants



READY2SERVICES SELF EVALUATION* FOR RESIDENTIAL BUILDINGS

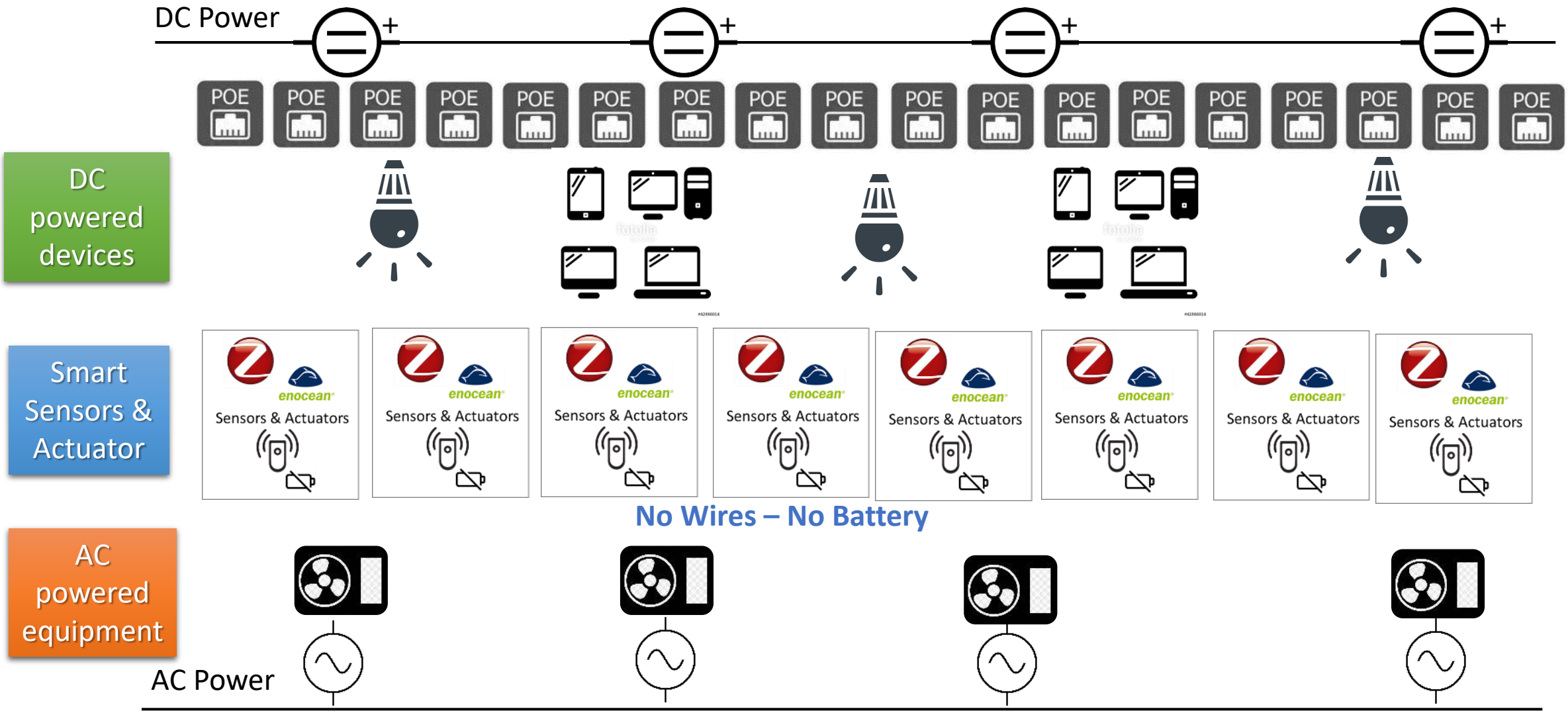
Responding to the same principles as those applicable to business premises the proposed approach for residential buildings is a self-evaluation by project owners based on a self-assessment grid adapted to residential buildings available directly from SBA.



R2S

*Available Q4 2018

Infrastructure for the Smart Building

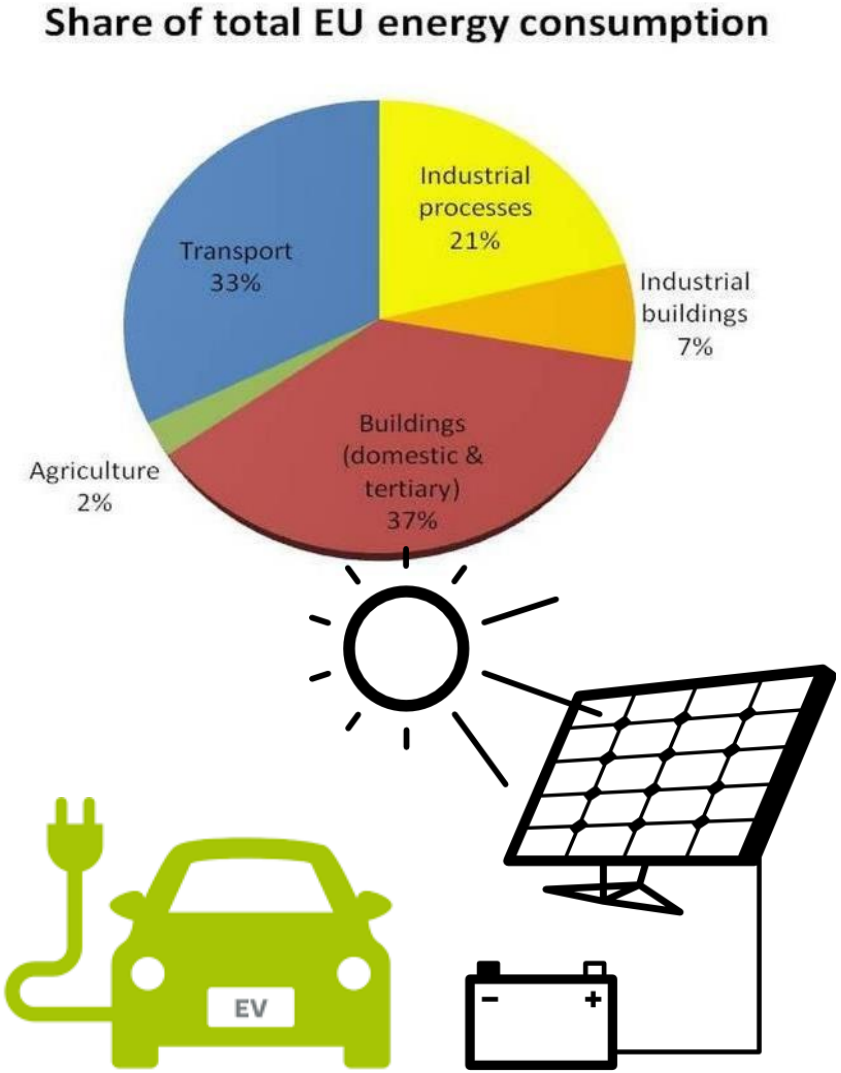


READY2GRIDS REFERENCE FRAMEWORK

The building's energy challenges

- Today, the building sector represents:
  - 37% of energy consumption (1).
  - 28% of greenhouse gas emissions (2).
  - The main contributor to power & energy consumption peak

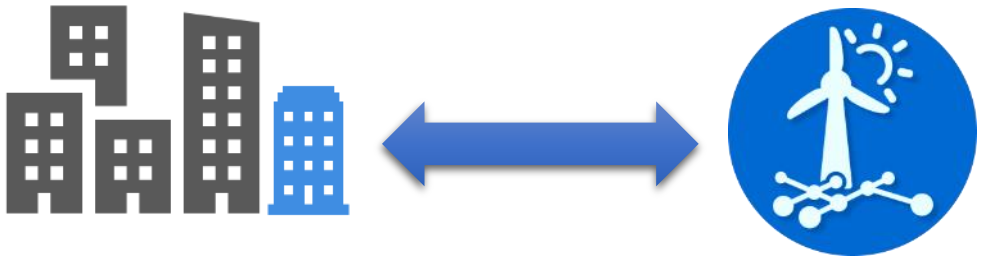
- The energy system is changing because of:
  - The transition to a greener more decentralized energy production system (solar, wind, geothermal, biomass, etc.)
  - The emergence of new uses (electric vehicles, self-consumption, storage, etc.)

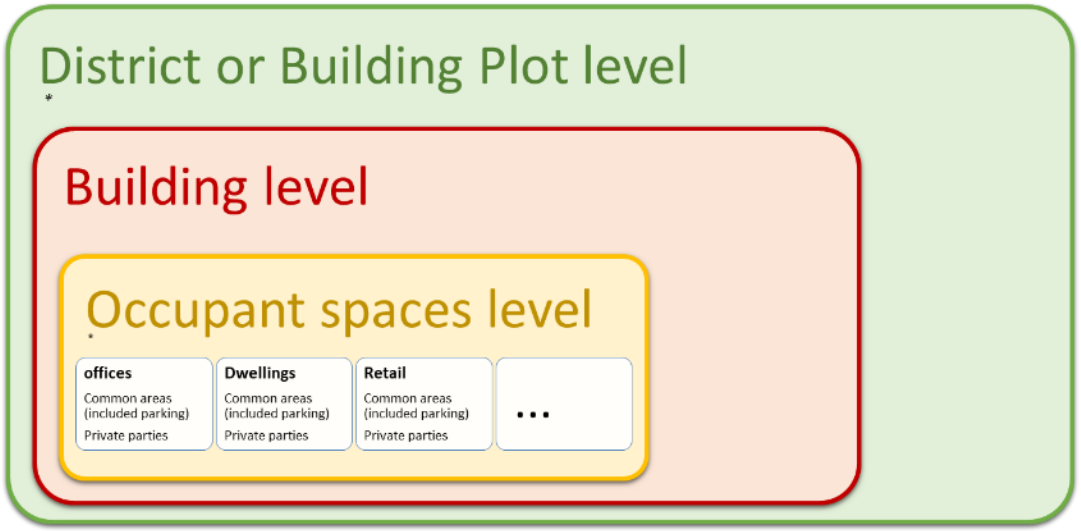


(1) In Europe
(2) EDF, 2015

Ready2Grids reference framework

- Ready2Grids (R2G) is a reference framework shared by the ecosystem of building developers and energy stakeholders
- A framework that applies to commercial buildings as well as collective housing, new construction or renovation.
- A framework dedicated to building owners and developers
- A framework allowing buildings to host a set of innovative energy services and become players in the energy transition.



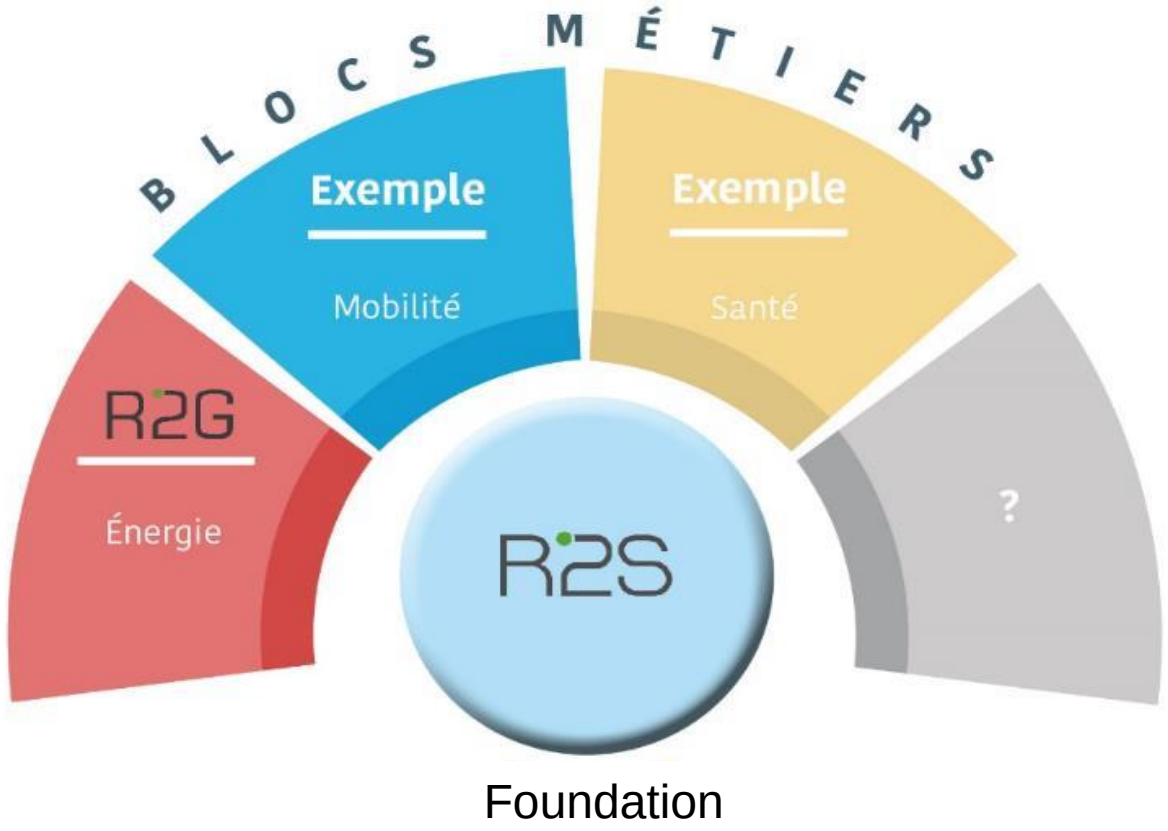


R2G : leveraging on the R2S reference framework

R2G is aligned with and in the continuity of R2S

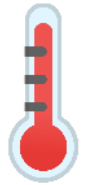
- It builds on the principles of interoperability, connectivity and computer security defined by R2S

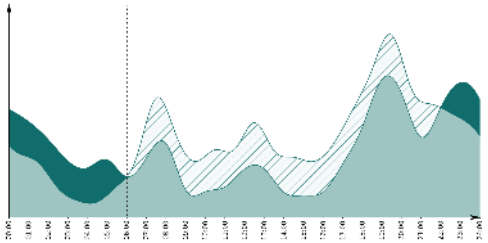
- It details the essential conditions for the communication of energy data between systems and building services.



Data communicated by a « R2G » building

- An R2G building is able to communicate a set of key energy data
  - The identity card of the building
  - Energy data
  - Influencing factors
  - Receive flexibility orders





- An R2G building is able to communicate this data in an open, interoperable and secure way

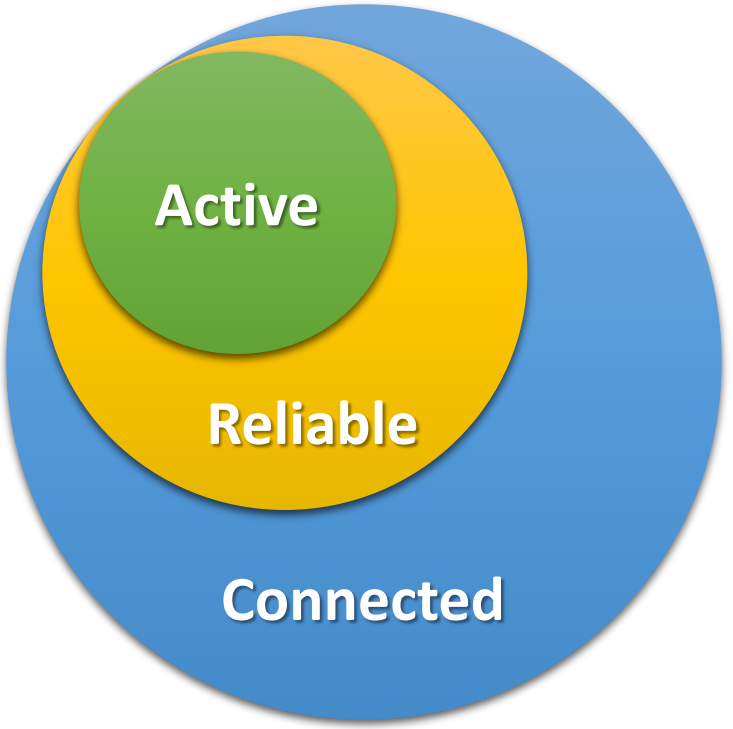
Functional properties of an R2G Building

3 levels of functionalities for the Ready2Grids building

- **Level 1 – Connected Building**
  → share data and receive consumption information

- **Level 2 – Reliable Building**
  → Know energy production, consumption and stick to objectives

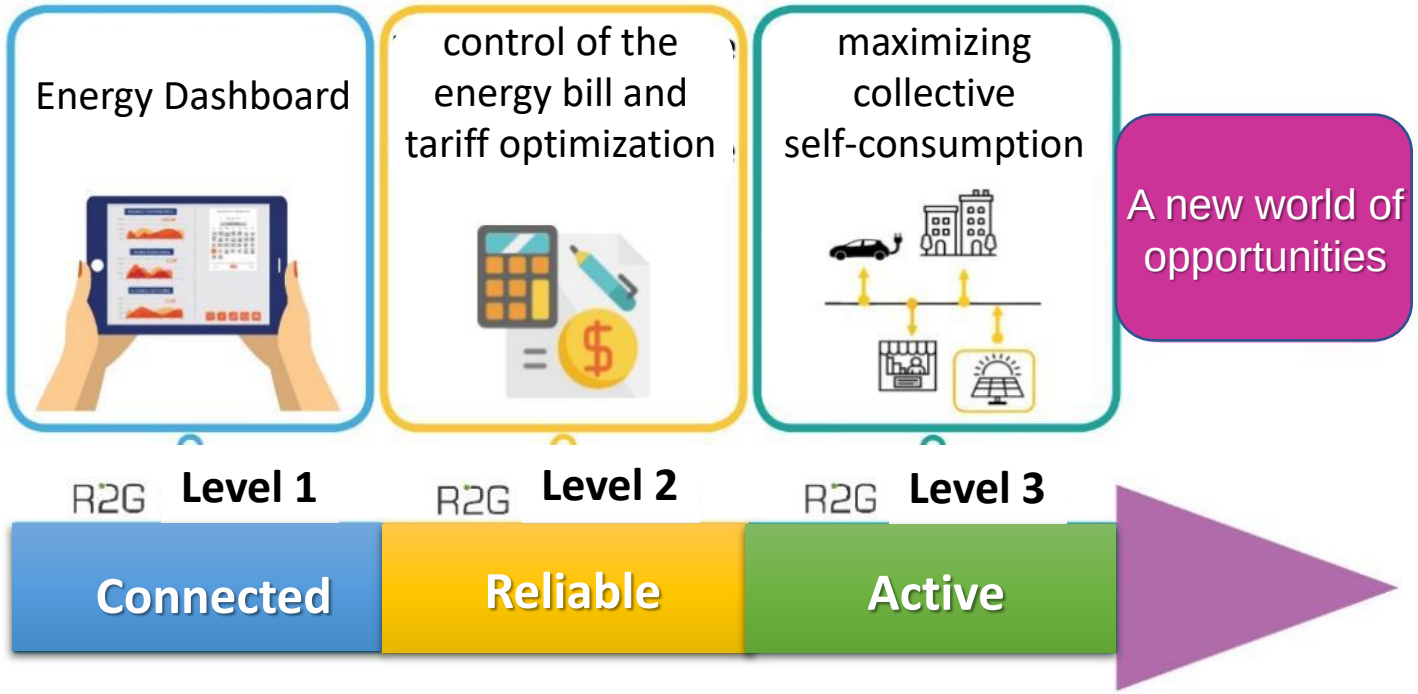
- **Level 3 – Active Building**
  → Modulate production, consumption and storage according to requests, forecasts ...



R2G, for buildings ready to host innovative energy services

Energy services for building users & building owners

- Improve the comfort of building users;
- Improve the building's environmental footprint
- Maximize the economic balance of the building.



THANK YOU FOR YOUR ATTENTION