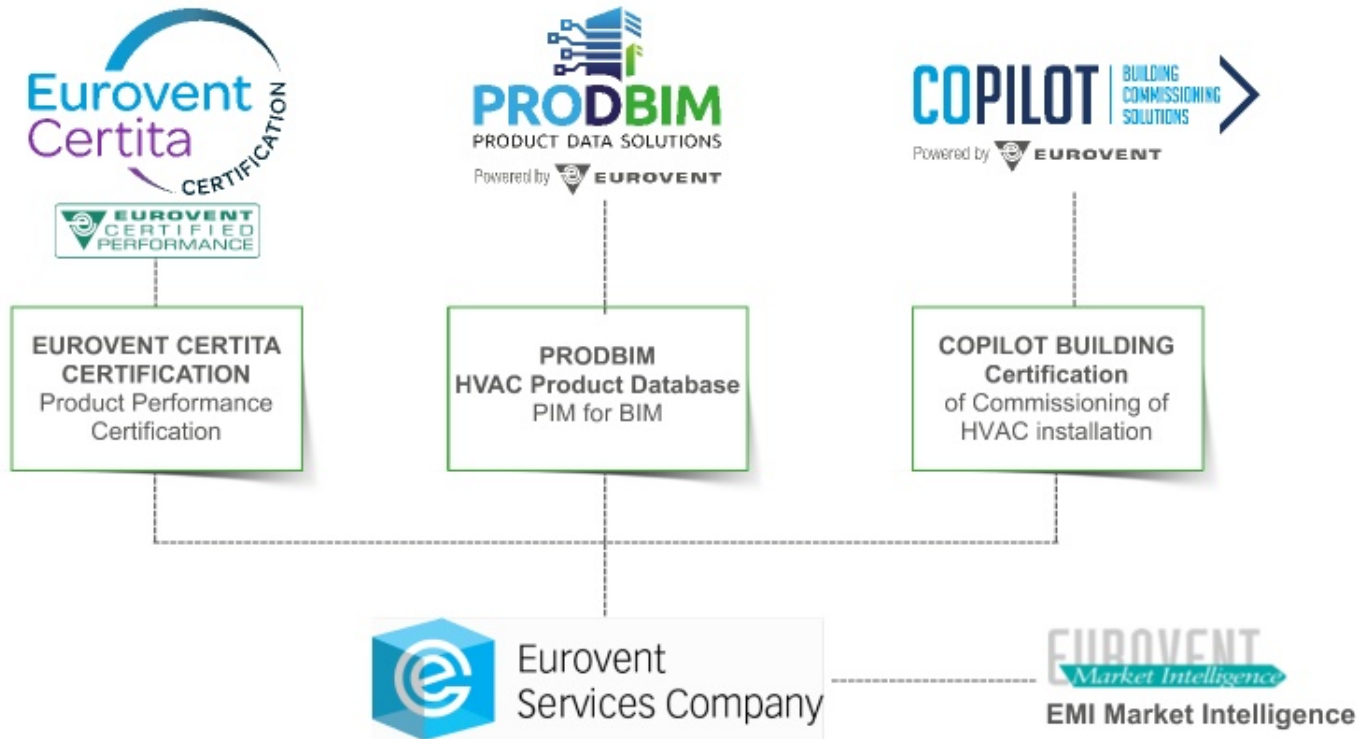


EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



THE GROUP



PLAN

Define objectives, feasibility & specifications



Actors :

Owners, asset managers, facility's managers, commissioning engineers



DESIGN



Select products Conduct technical dimensioning

Actors :

Architects, engineering companies,
contractors, commissioning engineers



CONSTRUCTION

Quality/Costs/Lead times

Actors :

Architects, engineering companies,
contractors & sub-contractors,
commissioning engineers



BUILDING

OCCUPANCY



Efficiency & comfort

Actors :

Building occupants & users, contractors, asset managers, facility's managers, commissioning engineers



Upgrade equipments & systems

Actors :

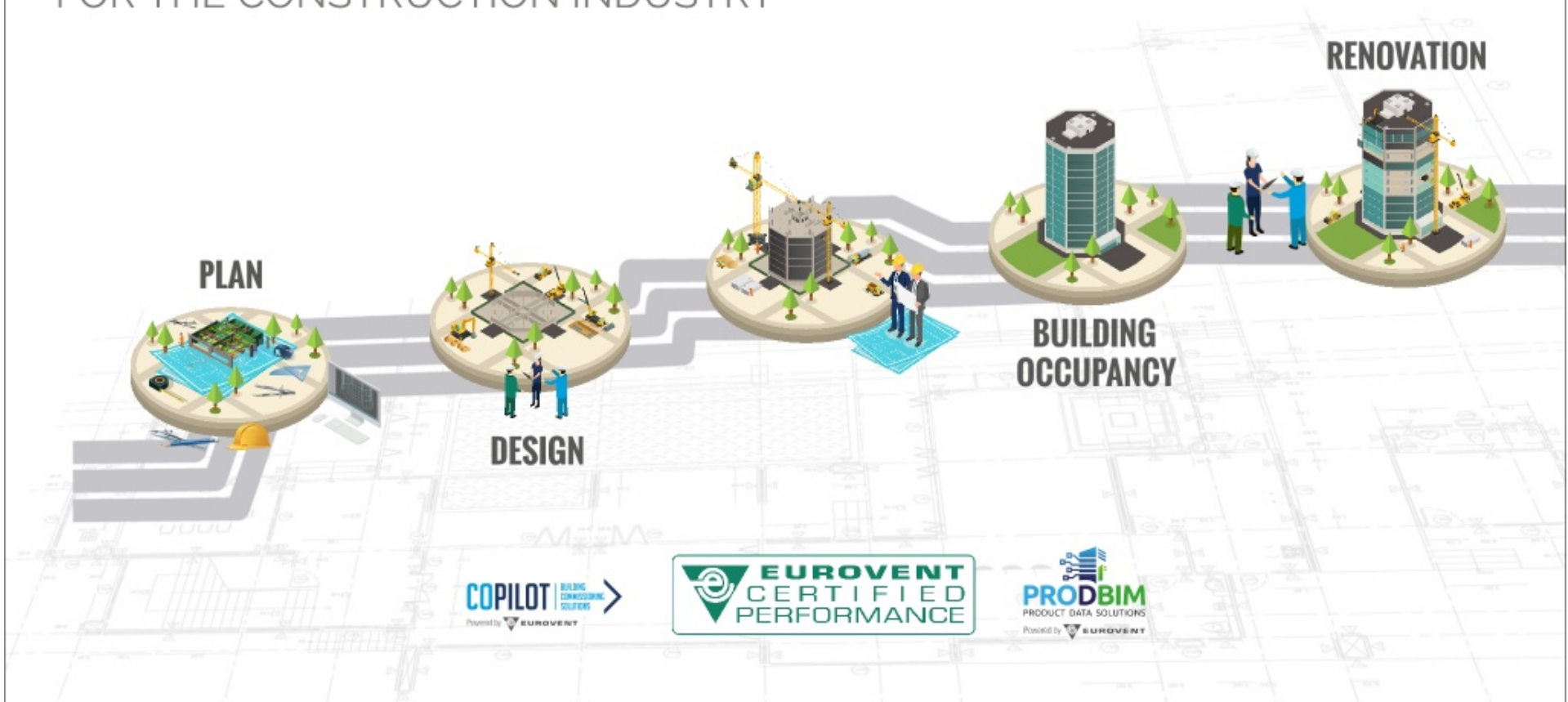
Building occupants & users, contractors, asset managers, facility's managers, commissioning engineers



RENOVATION

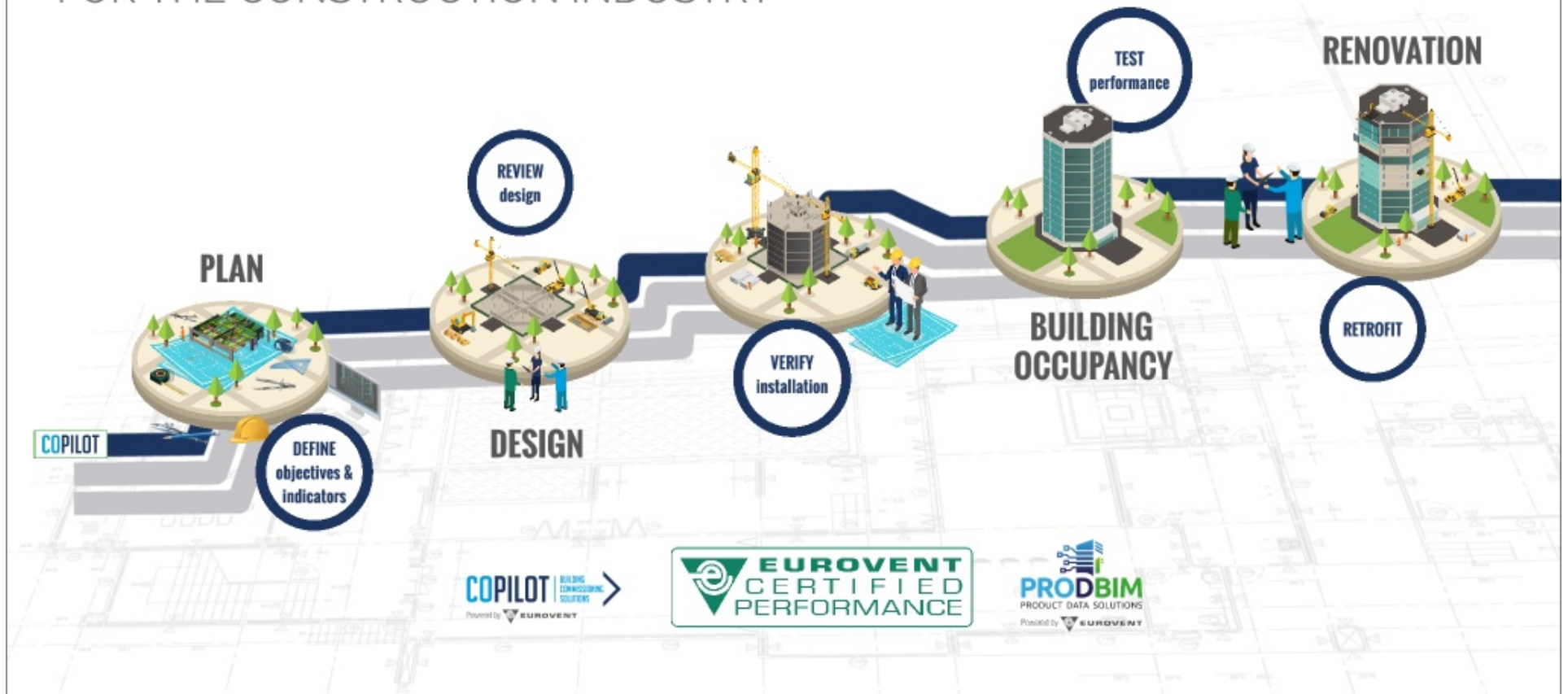
EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



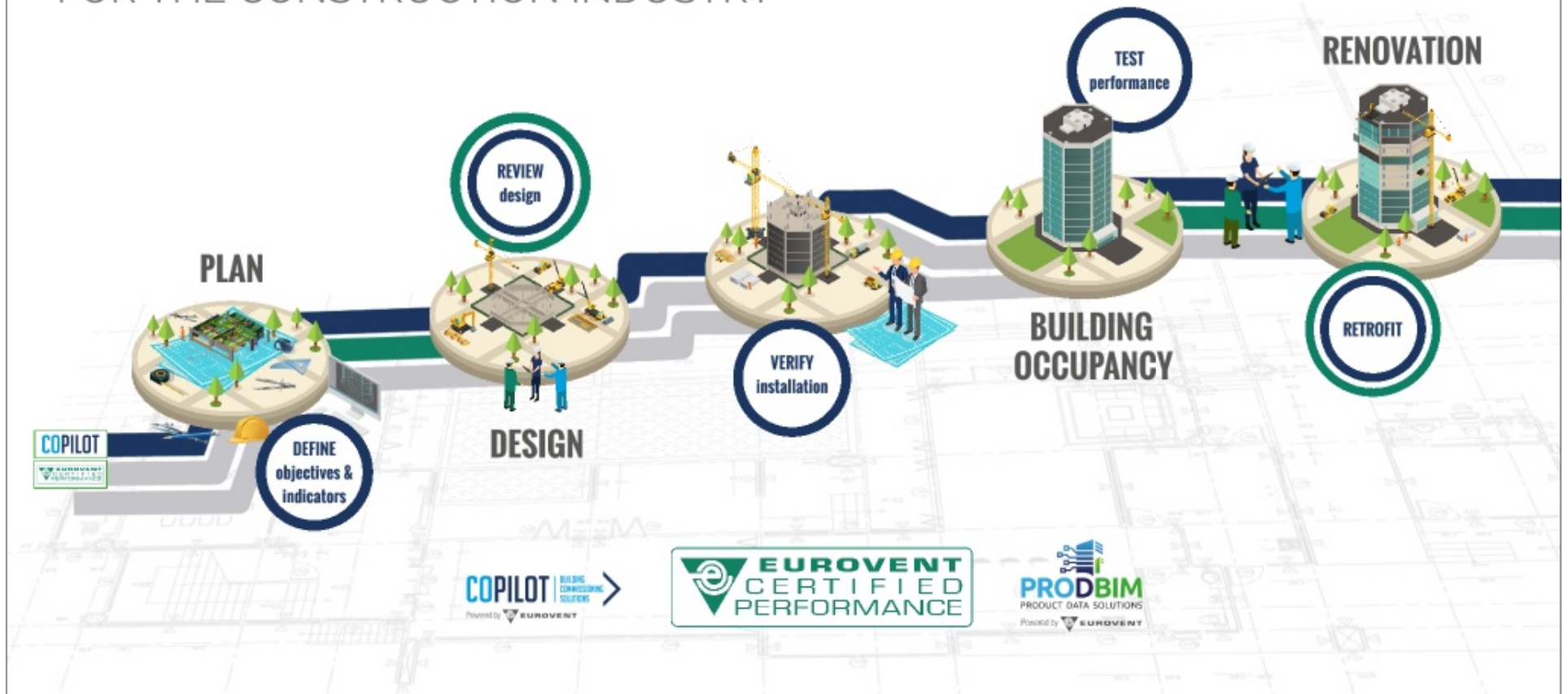
EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



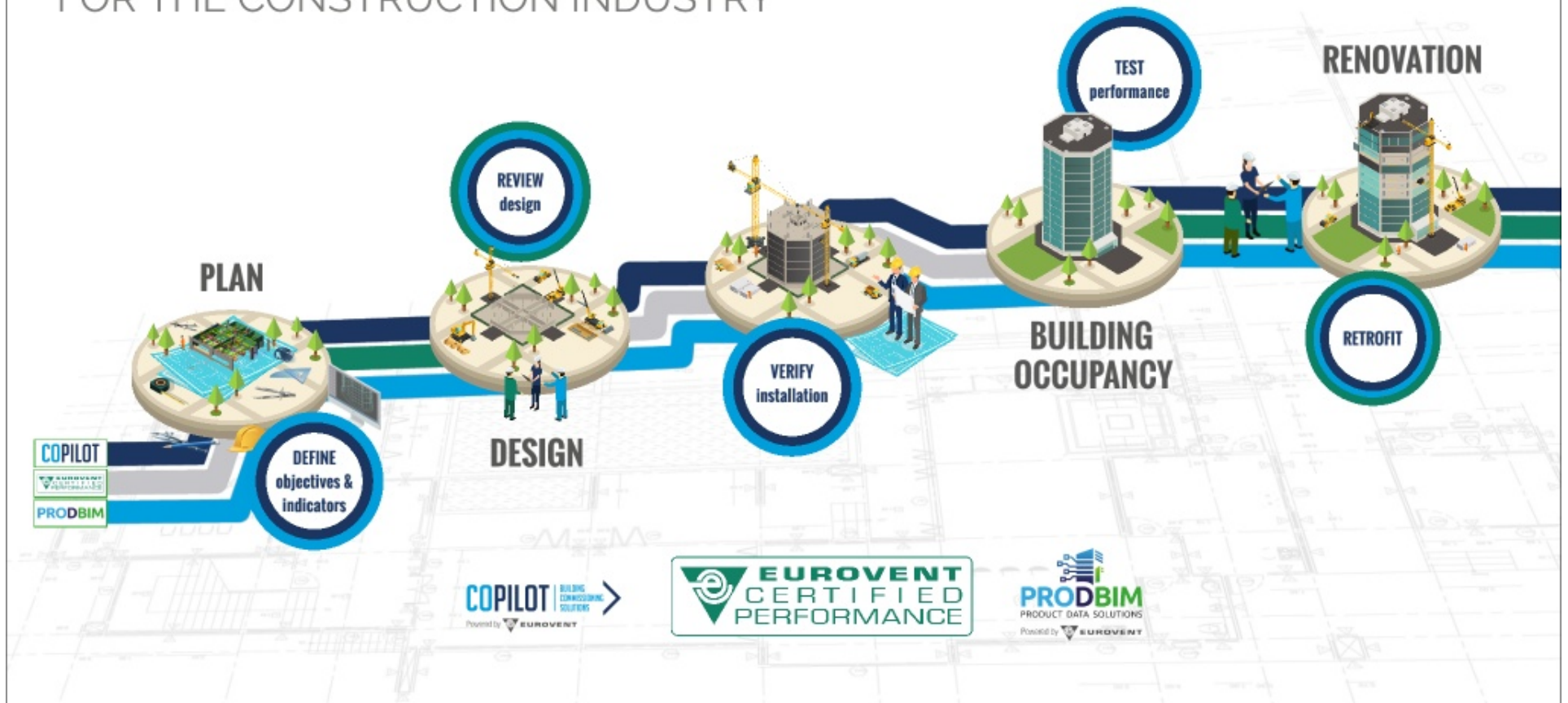
EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



COPILLOT | BUILDING COMMISSIONING SOLUTIONS



Powered by  **EUROVENT**

“THE MOST
EXPENSIVE PART
OF BUILDING IS
THE MISTAKES”

The Pillars of the Earth (Ken Follett)

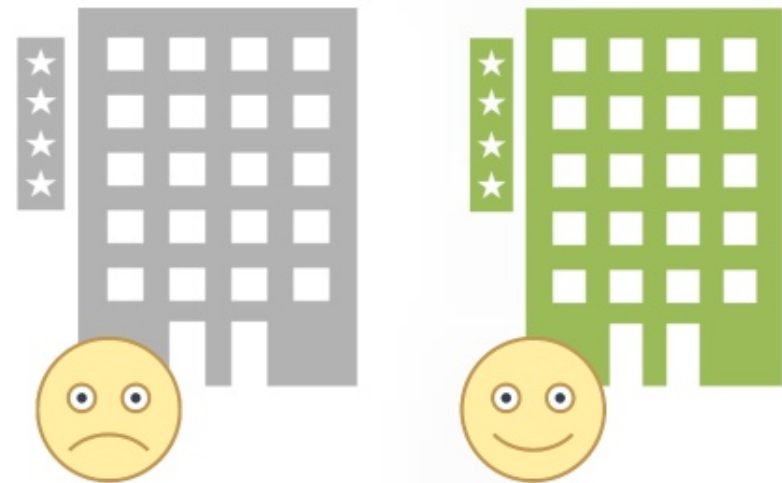
10%

Construction industry

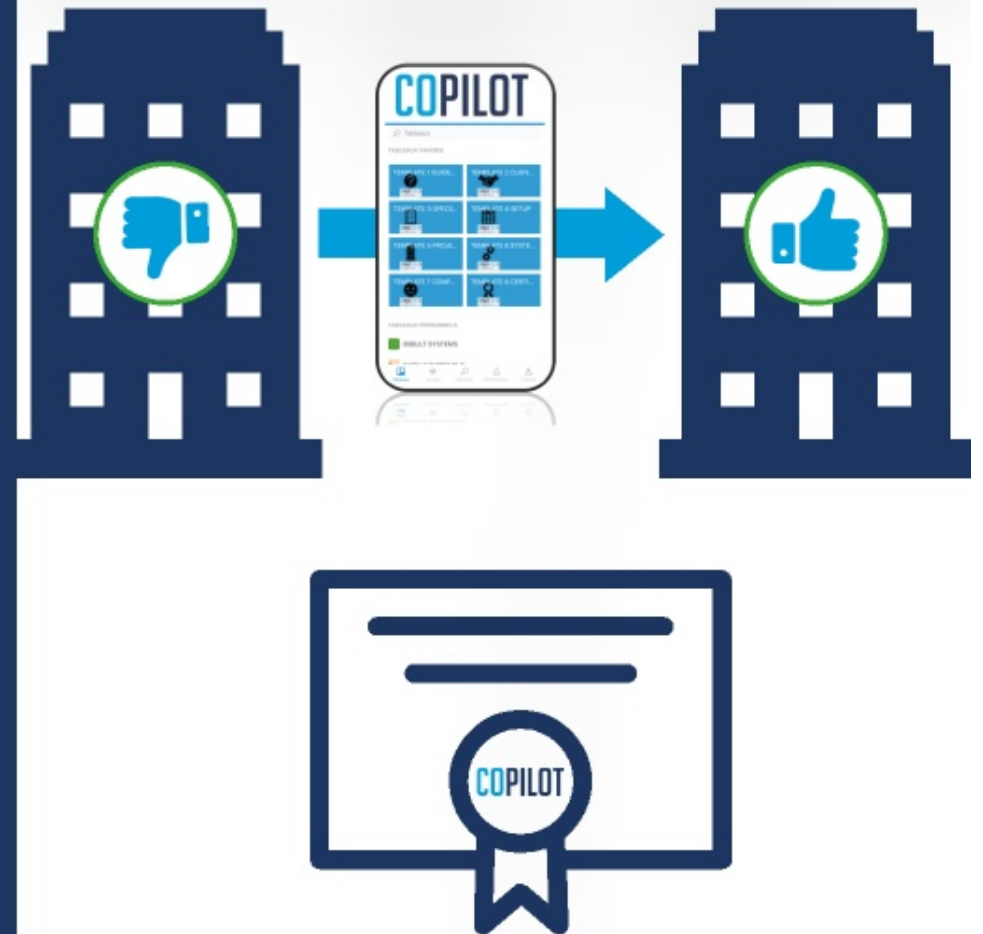
**LOSS IN
FRANCE
> €11 BILLION**

French Construction Agency (AQC)

International industry
associations, Eurovent
& REHVA, founded
COPILLOT to resolve
recurring building
quality problems



Certification of Commissioning

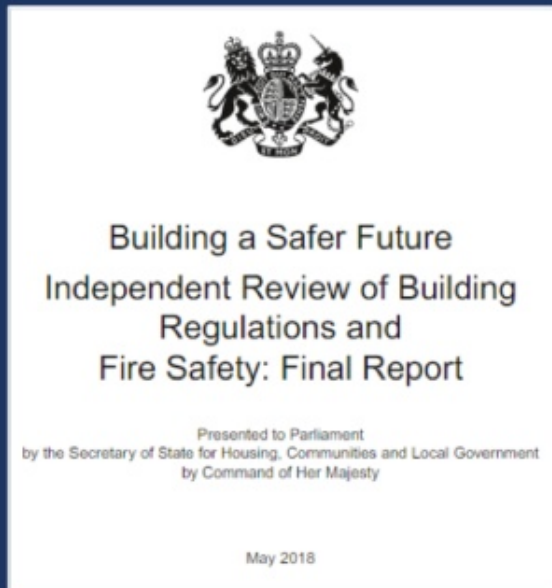


DE-RISK





GET BETTER BUILDINGS



HACKITT Requirements

COPILOT Solutions

Regulations & guidance

Partial

Roles & Responsibilities



Competence



Process control



Residents' voice

Partial

Quality assurance



GET WHAT YOU PAID FOR

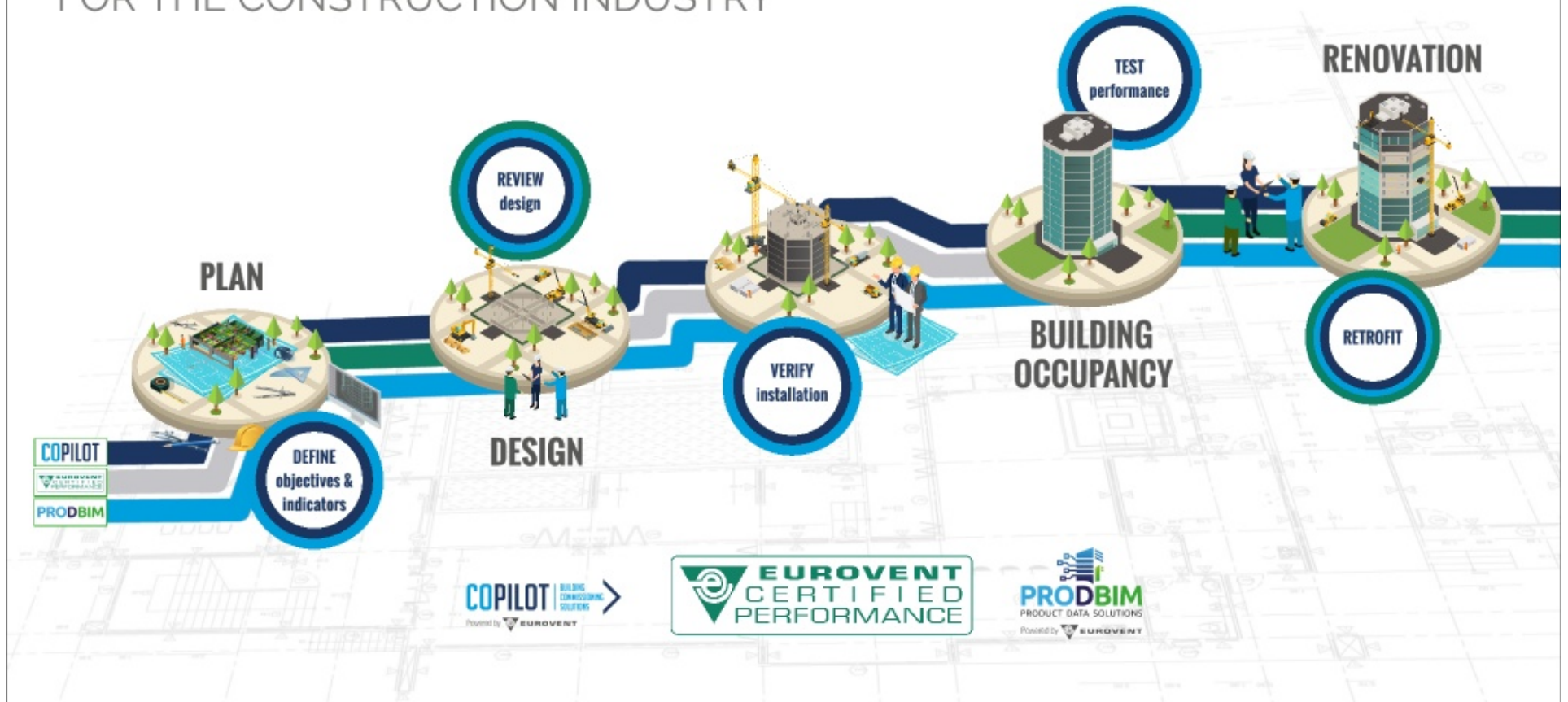
Comfort

Energy
efficiency

Your
objectives

EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY





TODAY'S SITUATION



Globalization
of the HVAC
market



**Increasing
need for data**
in construction
industry



Digitalization
in industry



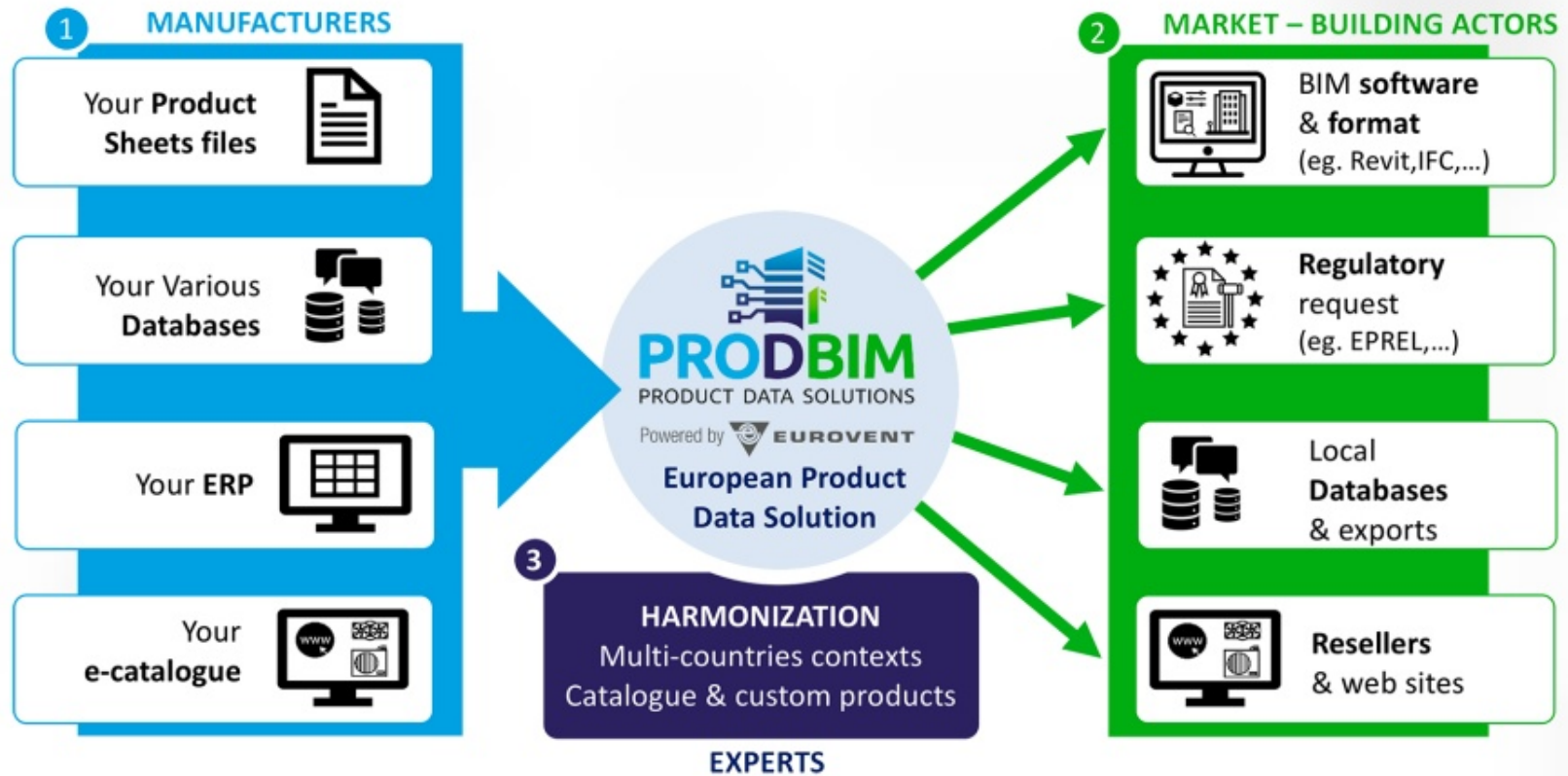
Omnichannel
for new prescription
process

PURPOSE OF PRODBIM



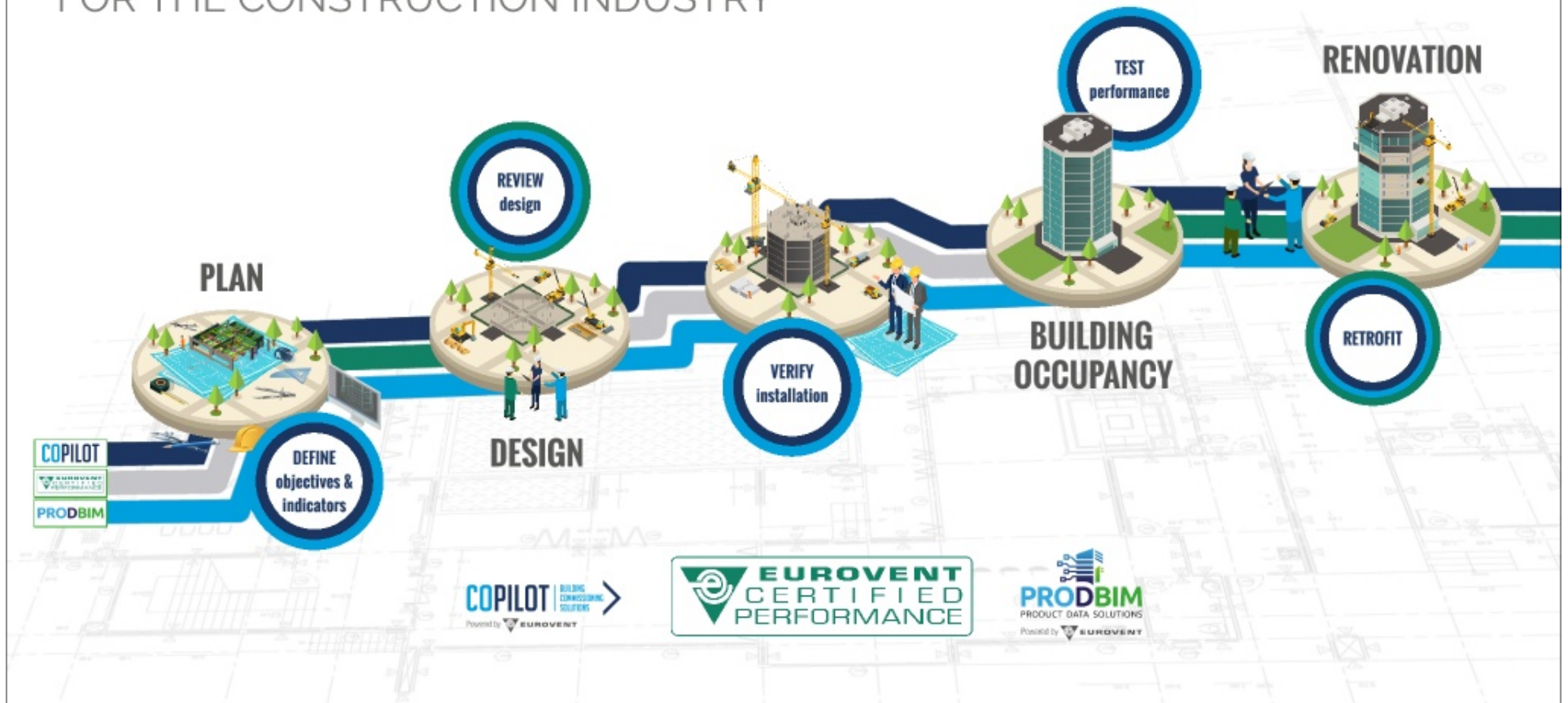
Structure **product information** for
HVAC manufacturer to answer to new
requirements from **BIM and Regulation**

SOLUTION _ OVERVIEW SERVICE



EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY

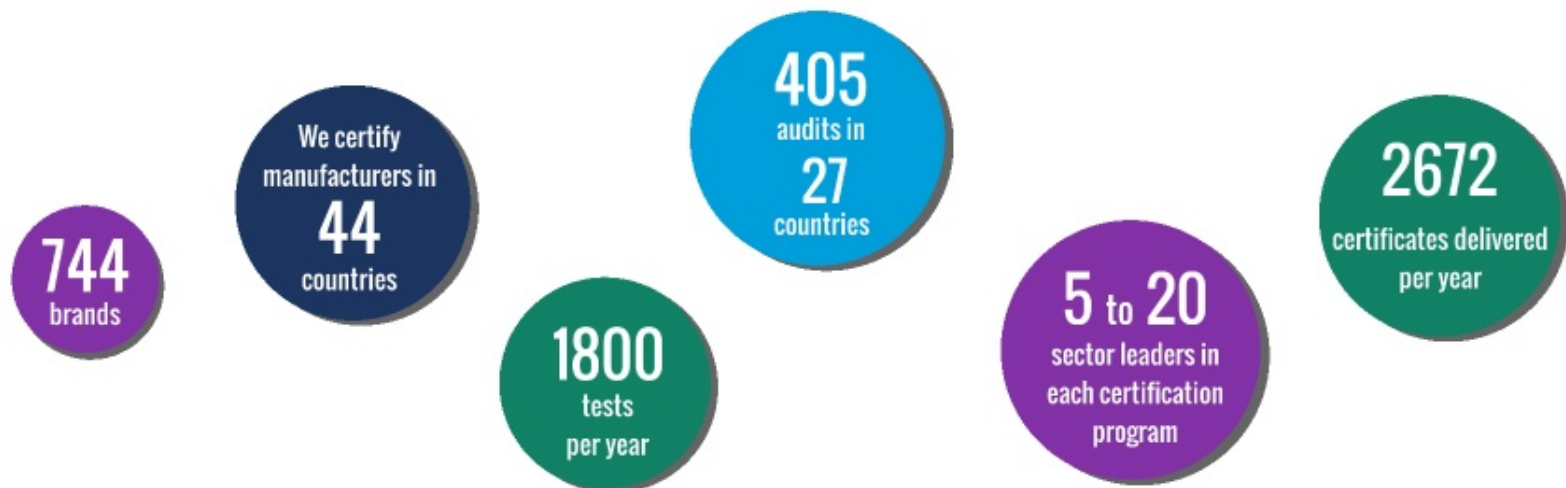




EUROVENT CERTITA CERTIFICATION

EUROPEAN CERTIFICATION BODY OF HVAC PRODUCTS FOR THE PAST 20 YEARS:

- **accredited** by Cofrac for the certification activity according to the norm NF EN ISO/CEI 17065 (certificate n° 5-5017) ;
- more than 90 000 certified products from 600 different manufacturers.



EUROVENT CERTITA CERTIFICATION

THIRD-PARTY CERTIFICATION BODY

ACCREDITED BY COFRAC*

Complies with the requirements of EN ISO/CEI 17065

- integrity
- independence
- impartiality
- competence

* certificat COFRAC n°5-0517 reconnu par les accords de reconnaissance EA/IAF : <http://www.european-accréditation.org> et <http://www.iaf.nu>



EUROVENT CERTITA CERTIFICATION

COMMON AND FAIR RULES

- common evaluation criteria
- integrity + impartiality
- fairness of the ratings
- precision and transparency of data

AN OBJECTIVE COMPARISON

- Certified characteristics published on Eurovent Certita Certification website



Third-party certification establishes rules that enable an objective assessment of the performances

EUROVENT CERTITA CERTIFICATION



OUR CERTIFICATION PROGRAMMES



Air-Conditioners (AC)



Close control air
conditioners (CC)



Chillers & Heat-Pumps
(LCP-HP)



Variable Refrigerant
Flow (VRF)



Rooftops (RT)



European Heat Pump
(Euro-HP)



IT Cooling Units (ITCU)



Fan Coil Units (FCU)



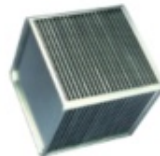
Chilled Beams (CB)



Air Filters (FIL)



Residential Air Filters
(RFIL)



Air to air plate heat
exchangers (AAHE)



Air to air regenerative
heat exchangers
(AARE)



Air Cleaners (ACL)

OUR CERTIFICATION PROGRAMMES



Air Handling Units (AHU)



Residential Air Handling Units (RAHU)



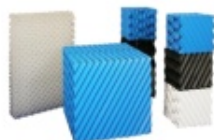
Fans



Ventilation ducts (DUCT)



Cooling Towers (CT)



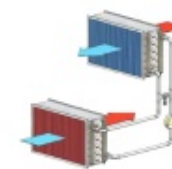
Drift Eliminators (DE)



Evaporative Cooling



Heating and Cooling Coils (COIL)



Heat Recovery Systems with Intermediate Heat Transfer Medium (HRS – COIL)



Liquid-to-liquid Plate Heat Exchangers (LPHE)

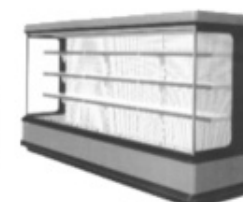


Heat Exchangers for Refrigeration (HE)



Heat Interface Units (HIU)

Refrigerated Display Cabinets (RDC)



OUR CERTIFICATION PROGRAMMES



HEATING AND HOT WATER

- MCS Heat pumps
- NF micro-cogeneration
- NF Heat pumps
- NF Multi-energy systems
- NF Radiators
- Keymark Thermostatic radiator valves
- Temporal variation of thermostatic valves
- NF Domestic appliances using liquid or solid fuels
- Flamme verte
- NF Mobile liquid fuel heaters



SOLAR

- NF domestic solar water heaters
- QB39 Solar processes
- Solar KEYMARK

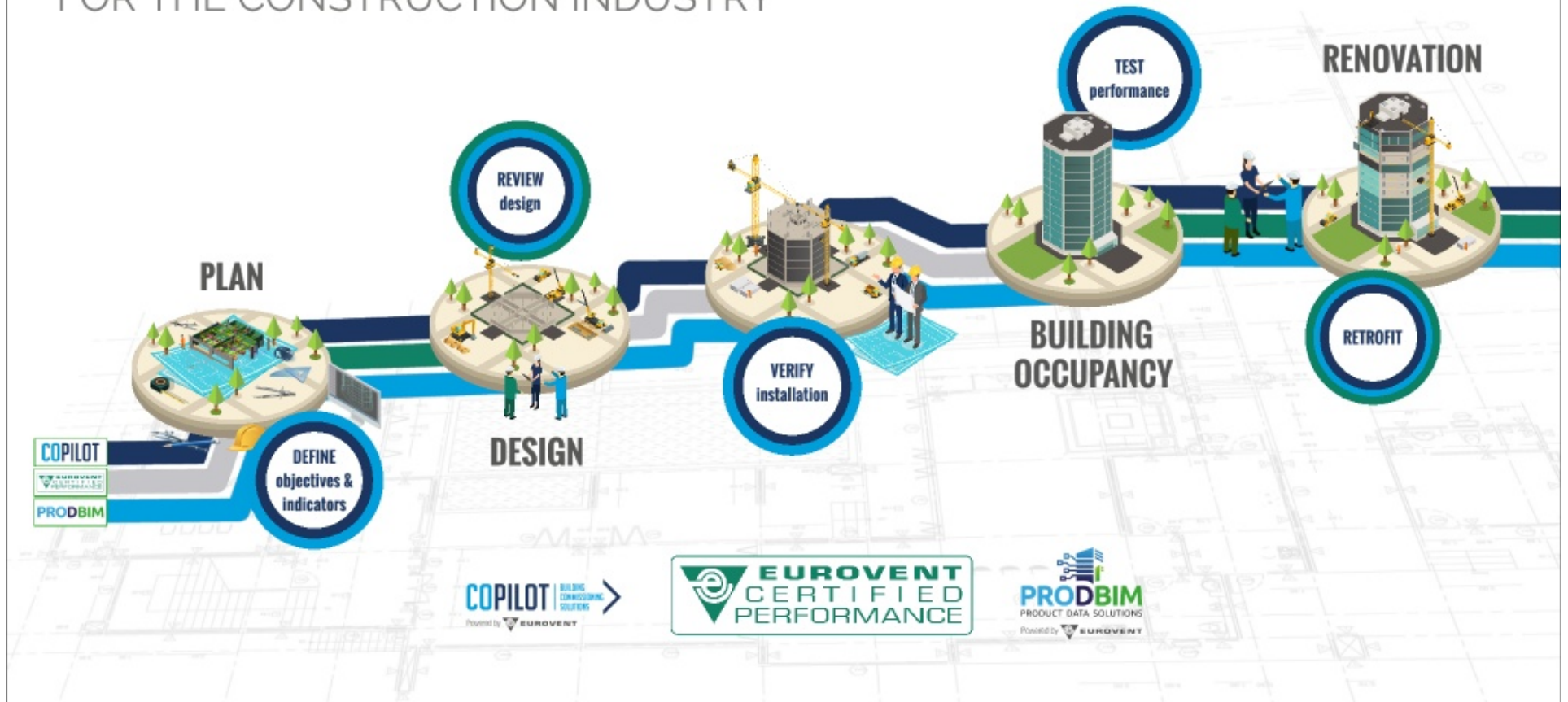


VENTILATION

- NF Air cleaners
- NF Controlled mechanical ventilation
- QB 37 Humidity-controlled ventilation
- NF Chimneys and metal linings
- QB 40 Chimneys and ducts
- NF Clay/ceramic chimney products

EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



The logo for PRODBIM is centered within a thick green rectangular border. The text 'PRODBIM' is rendered in a bold, sans-serif font. The letters 'PRO' are blue, 'D' is dark blue, and 'BIM' is green.

PRODBIM

SOLUTION - SERVICES

European Product Data Solution

1



Product committees

European harmonized dictionary to describe HVAC products

2



PIM services

Supplier portal for product data management by context

3



Export & Publish services

Export product data to other databases, plug-in, website



Product committees

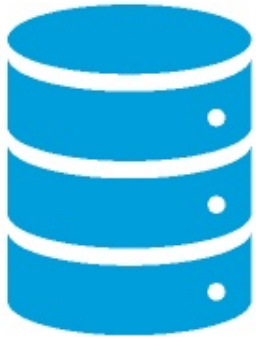
European harmonized dictionary to describe HVAC products

Need:

Have an harmonized way to describe HVAC product in Europe

Solution:

Product committees to build a data dictionary with manufacturers from several companies and countries



PIM services

Supplier portal for product data management by context

Need:

Upload product information to third party databases via dedicated interface & application

Solution:

Supplier portal part of a robust PIM solution



Export & Publish services

Export product data to other databases, plug-in, website

Need:

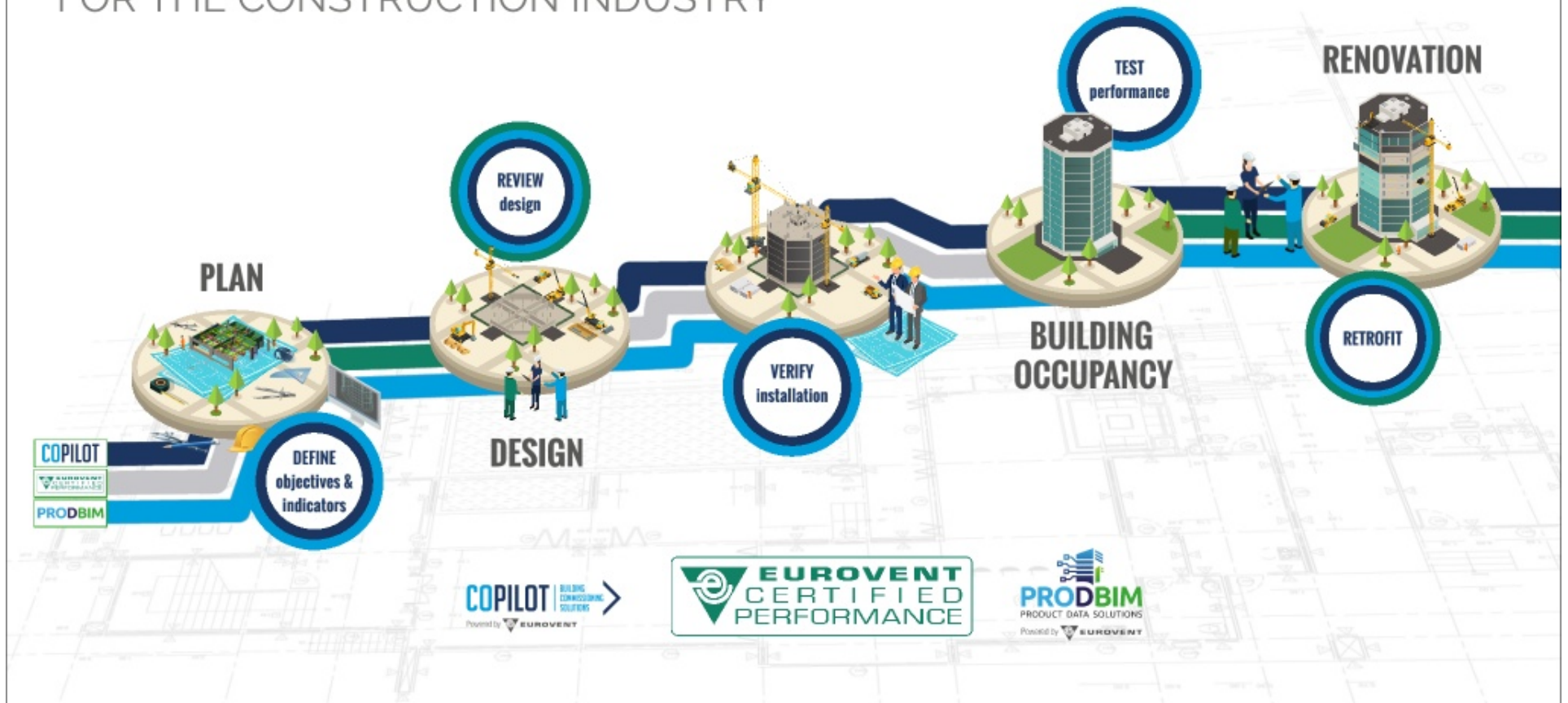
Increasing demand for digitalized product data from prescription and customer market

Solution:

Build connection to several Databases, software and website to enable products **visibility** and **prescription**

EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



PLAN

COPILLOT

PRODBIM



COPILLOT



BE SURE



COMMISSIONING TEAM



CLIENT

COPILOT



COMMISSIONING MANAGER

COMMISSION THE FULL LIFE CYCLE



FORMALIZE

Owner's
Objectives



DEFINE

System
Prioritization



VERIFY

Roles &
Responsibilities



Sign-off Visa

VERIFY

Competence



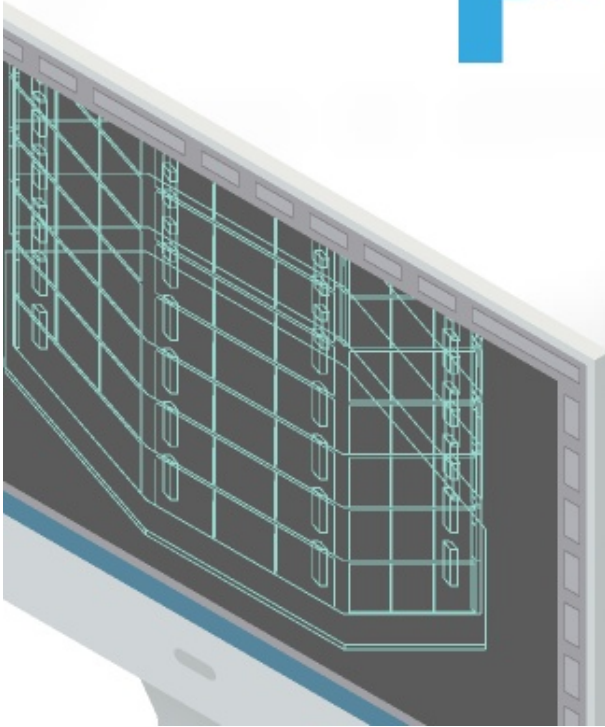
Sequences & Timing



3rd Party Verification



PRODBIM



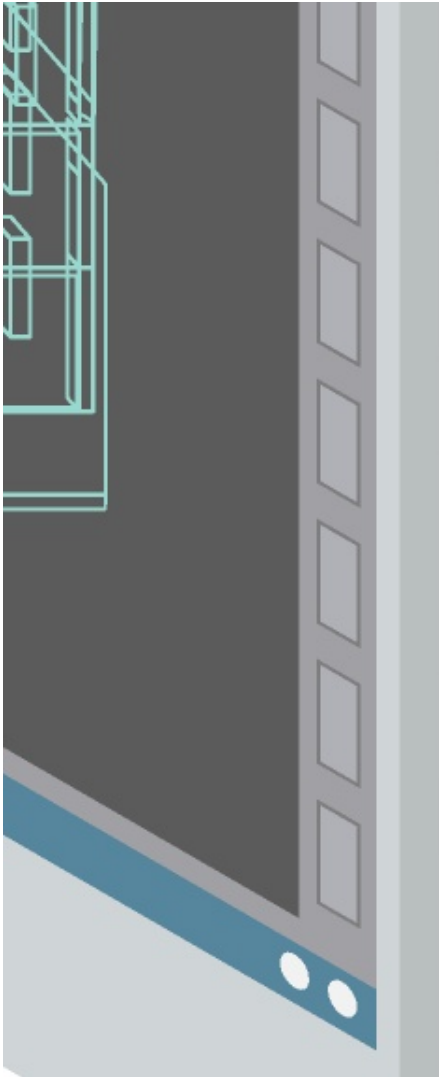


NEEDS

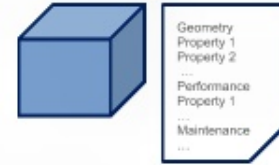
- Formalize project requirement
 - Set generic product for tender
 - Ensure compliance with building codes

SOLUTION

- PRODBIM's harmonized Product Data Template



PRODBIM's PDT



- Create from collaborative approach with HVAC experts.
- Compliant with latest CEN standards (from CEN 442 WG4)
- Include minimum information based on local codes & market needs
- As a “pivot format”, PDT can be mapped with several other formats and referential : ETIM – IFC – Revit parameters – etc.

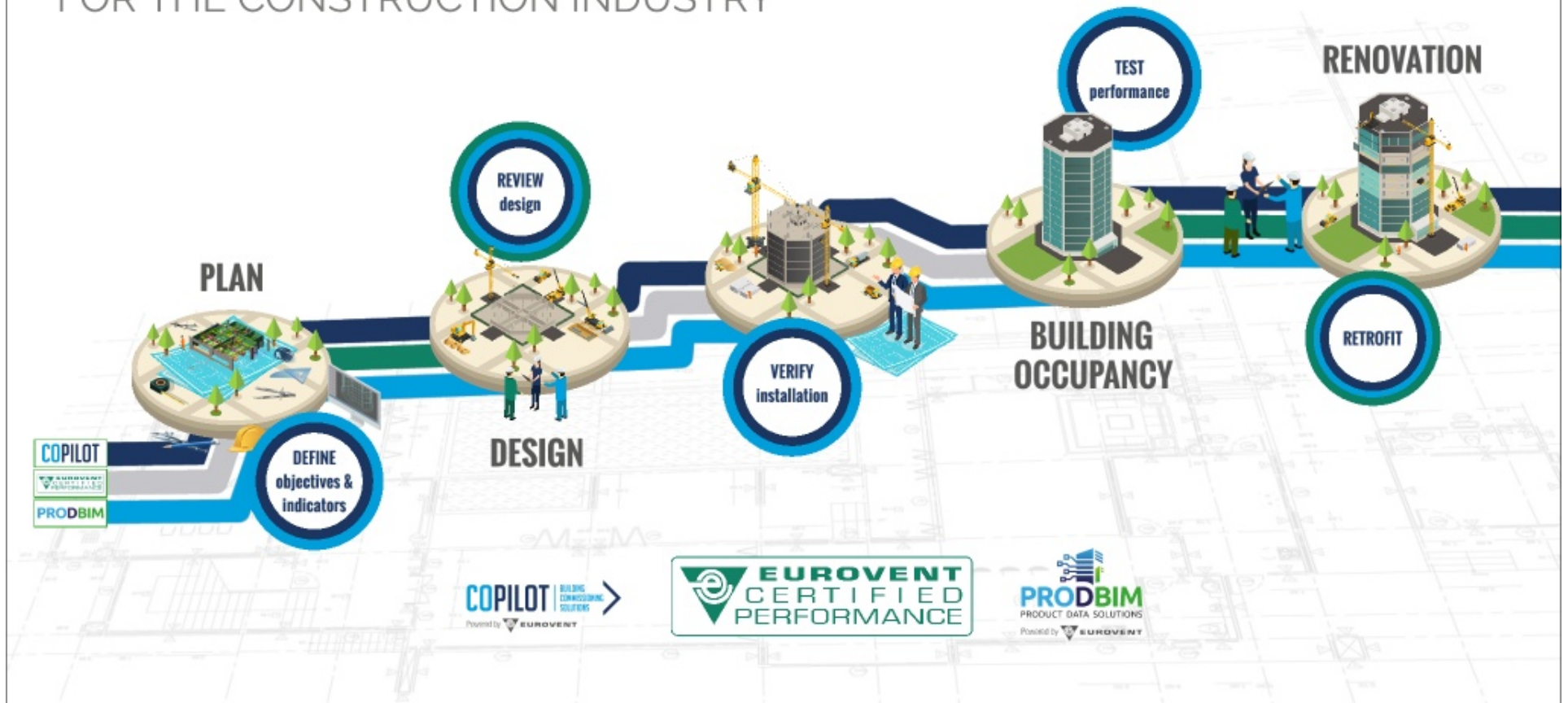
BENEFITS FOR PLANERS

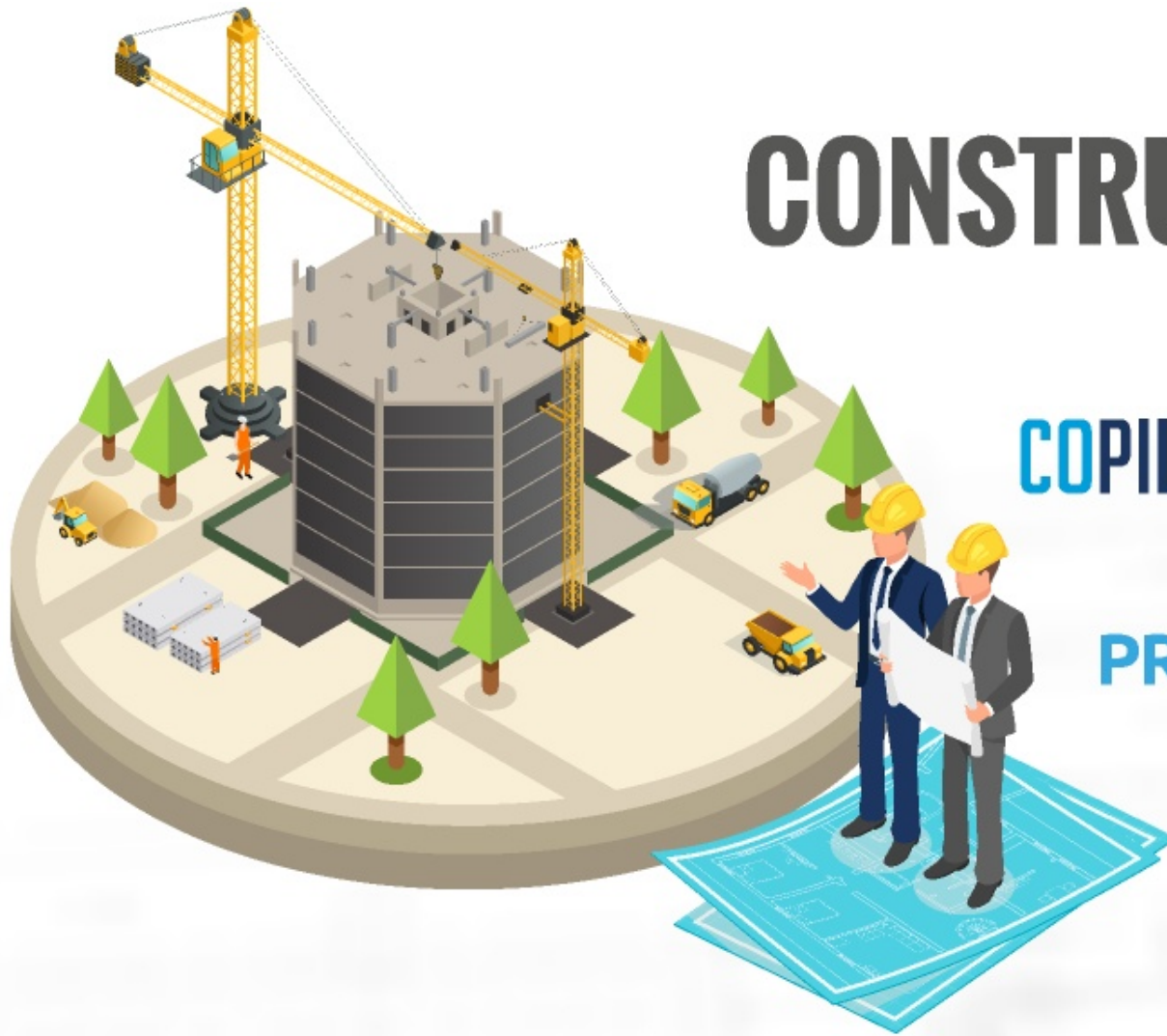


- PDT are a framework to express requirement for building equipment.
- It will facilitate checking of selected products against project specifications.

EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY





CONSTRUCTION

COPILLOT

PRODBIM



COPILLOT



BUILD



CLIENT



Submittals &
Installation



Startup &
Balancing



Functional
Testing



Training



COMMISSIONING MANAGER

Review, check & test

COPILOT

Audit





PRODBIM

NEEDS

- Build as design (and specified)
- Manage building logistic
- Achieve system proper installation

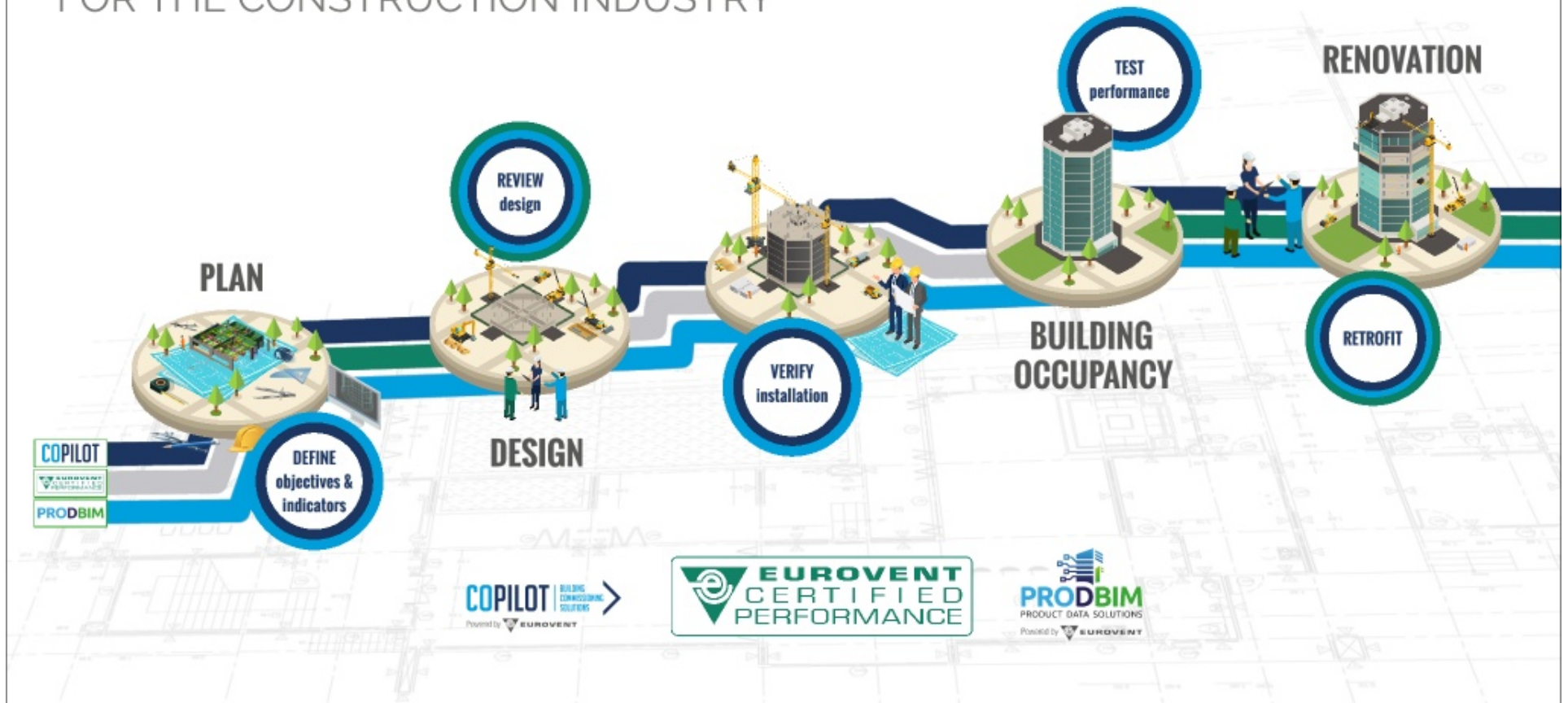


SOLUTION

- **PRODBIM platform (in progress)**
Product search engine and easy access to technical, logistical and installation/ commissioning information

EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



BUILDING OCCUPANCY

COPILLOT

PRODBIM





COPILLOT

OPERATE



CLIENT



Trend log export



COMMISSIONING MANAGER

Test

COPILOT



Comfort Alert



Seasonal Test

Audit
Test
Certify
Archive

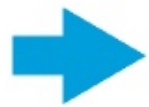


PRODBIM



NEEDS

- Have access to installed equipment information
- Anticipate equipment replacement, predictive maintenance



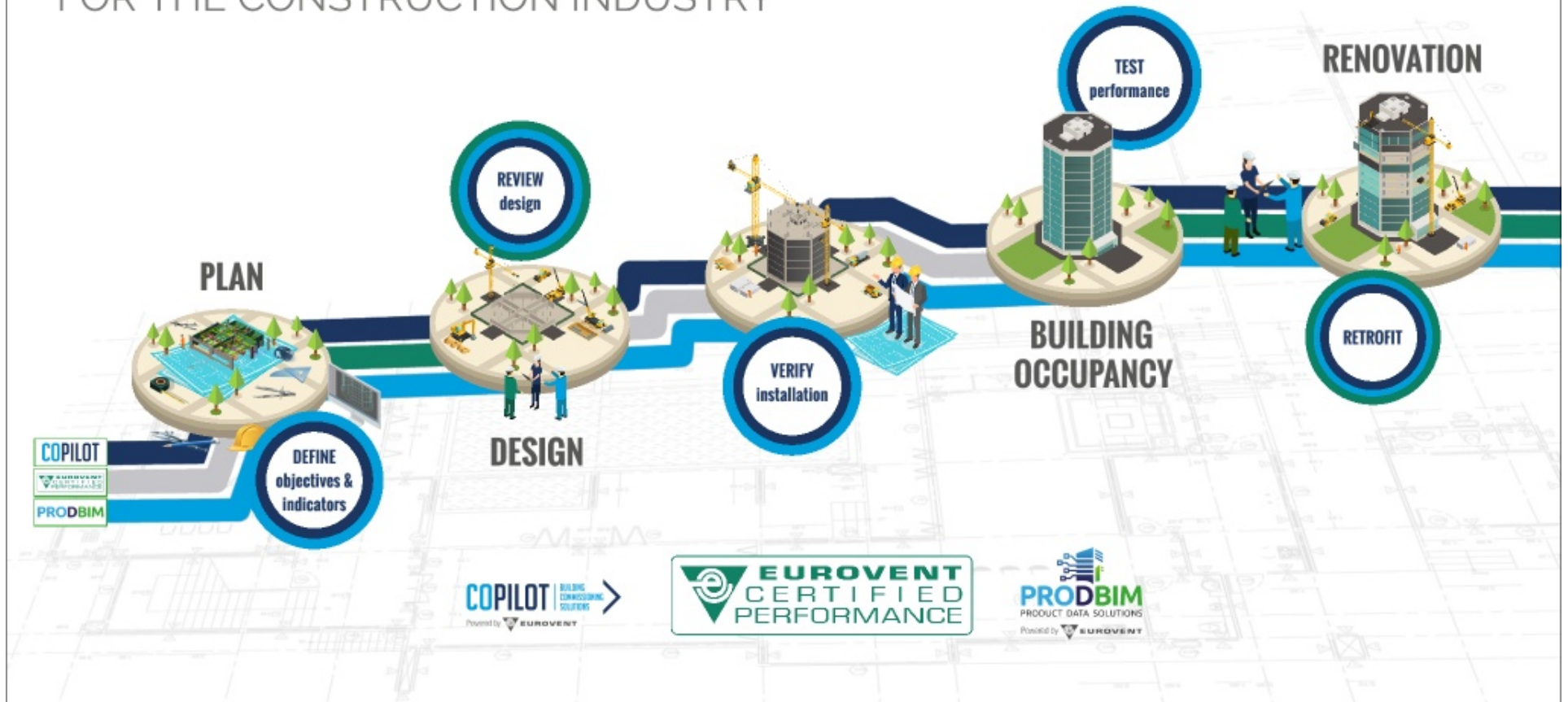
SOLUTION

- **PRODBIM platform (in progress)**
Product search engine and easy access
executing and maintenance information



EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



RENOVATION

COPILLOT

PRODBIM



COPILLOT



CASE 1: RENOVATE

Step 1...

Test current installations to map departure point and select best renovation options

Step 2...



Renovation projects are commissioned as normal

CASE 2: HVAC TROUBLE SHOOTING



PRODBIM



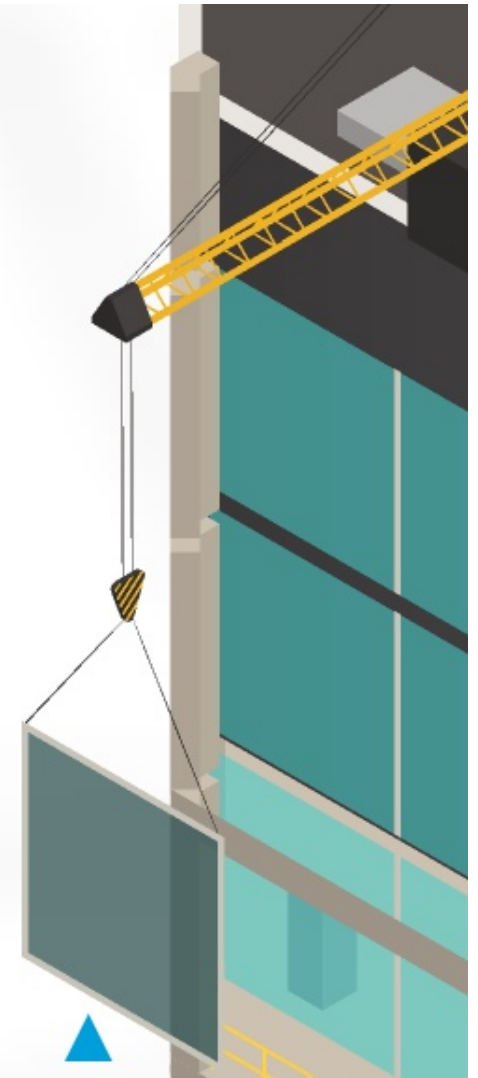
NEEDS

- Have access to installed equipment information
- Anticipate equipment replacement, predictive maintenance



SOLUTION

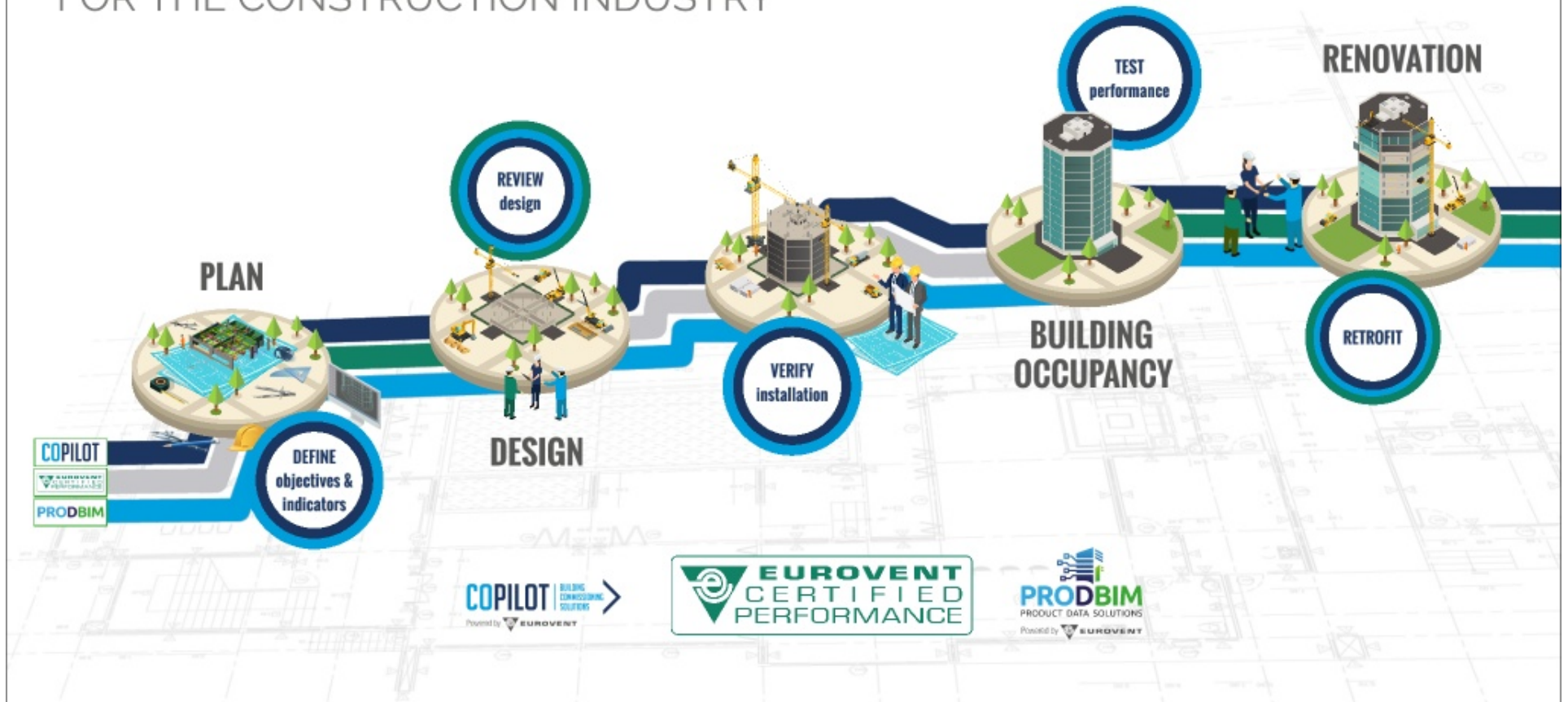
- **PRODBIM platform (in progress)**
Product search engine and easy access
executing and maintenance information



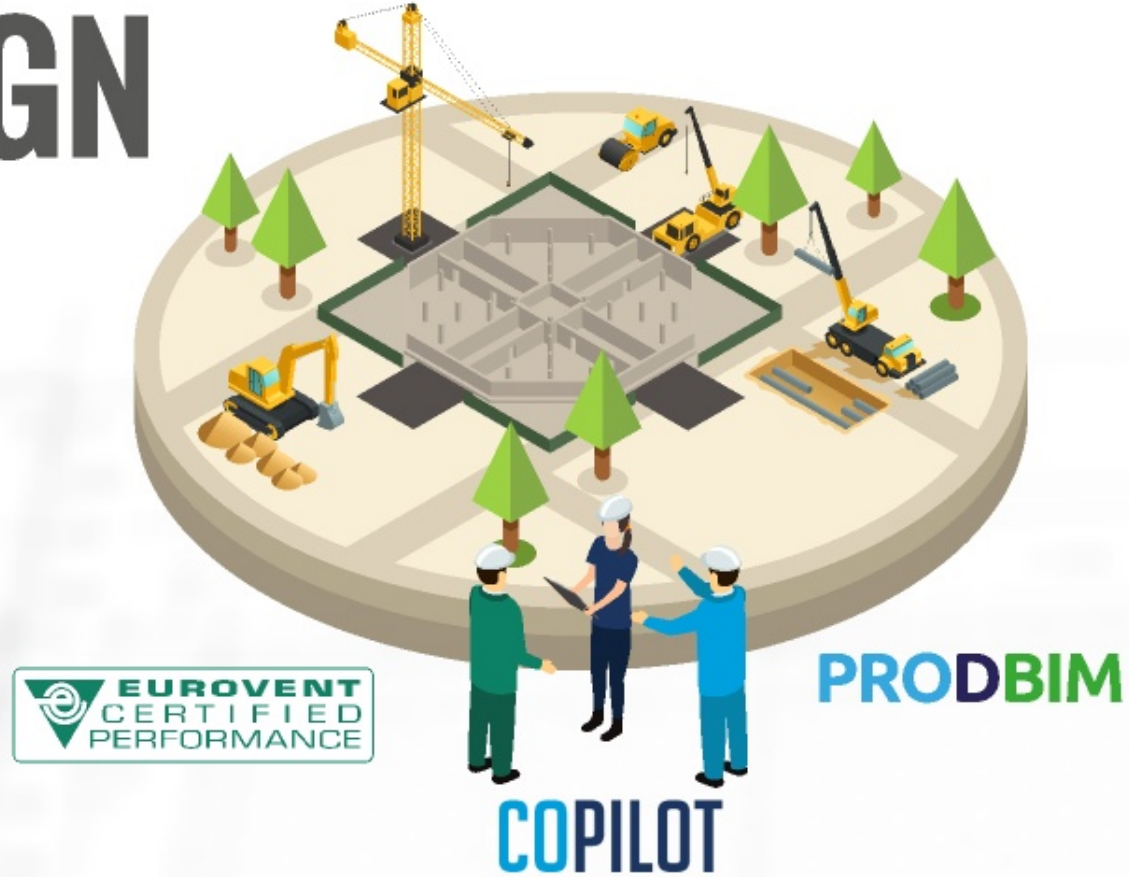


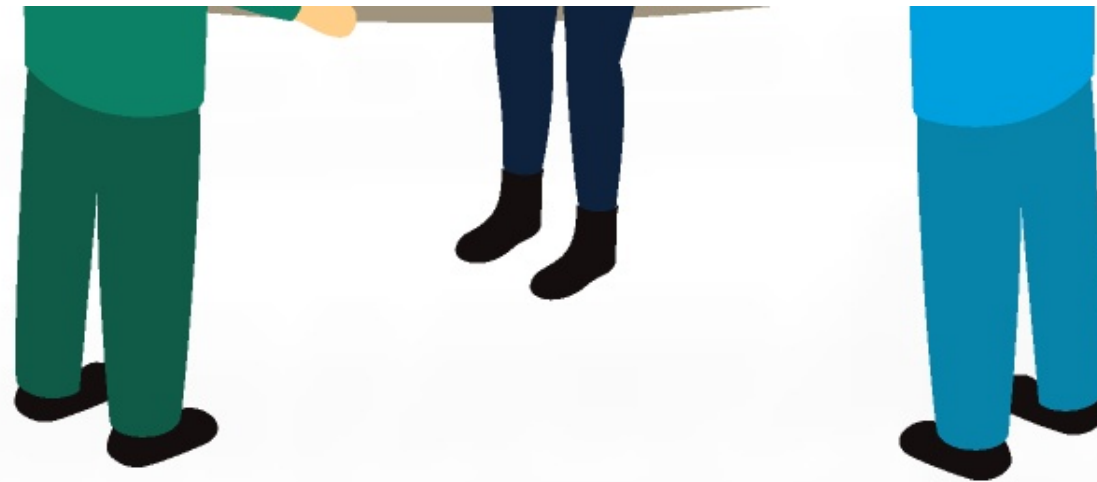
EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



DESIGN





COPILLOT

DESIGN



CLIENT



Basis of
design



Detailed
design



COMMISSIONING MANAGER

Review

COPILOT

Audit





NEEDS

- Simulation to ensure system behavior matches with project requirement
- Optimize performance-cost ratio
- ➔ Select the proper equipments to achieve planed objective

SOLUTION

- Standardized technical description of product
- Integration of catalogue product data into simulation software (plug-in, integrated database)
- Search engine for product by technical criteria



SOLUTION

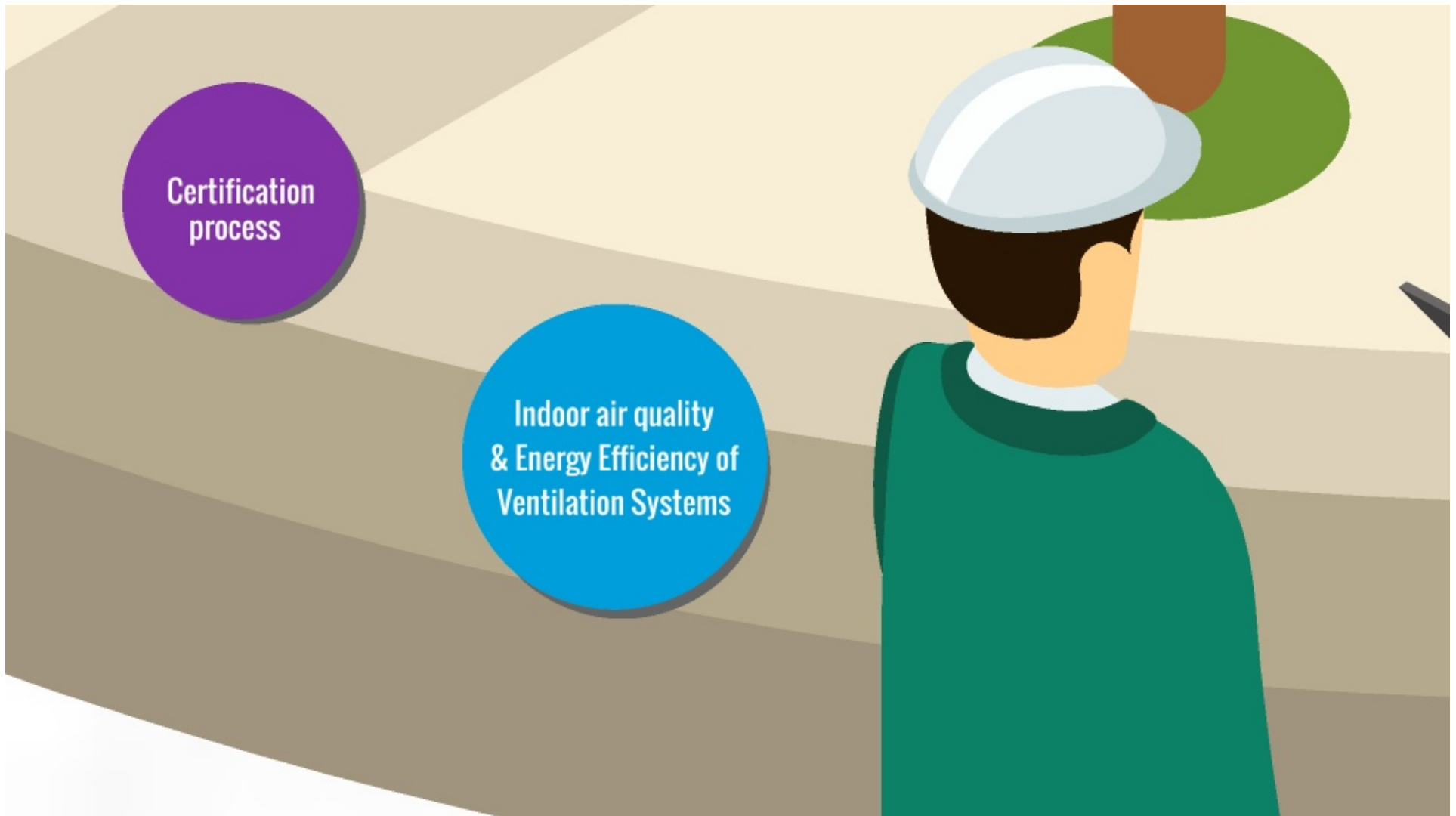
- Standardized technical description of product
- Integration of catalogue product data into simulation software (plug-in, integrated database)
- Search engine for product by technical criteria

BENEFITS FOR DESIGNERS

- Facilitate implementation of requirement into calculation software
- Speed up generation of scenario with different equipment selection / configuration directly into calculation software, through plug-in and search engine










Certification process

CERTIFICATION PROCESS



The background of the slide is a stylized landscape with rolling hills in shades of beige and tan. On the right side, there is a dark green, rounded shape representing a bush or tree. A large, solid blue circle is centered on the left side of the slide, containing white text.

Indoor air quality & Energy Efficiency of Ventilation Systems

IAQ & EE Ventilation System

- Building energy consumption reduction was the key issue of the past decades
 - Energy Performance of Buildings Directive (EPBD) recast in 2010 (2010/31/EU)
 - National regulations (Ecodesign, Thermal) + Energy efficiency labellings
- Energy efficiency well-established as a key parameter in the construction sector (designers, constructors and users)



Focus on EE sometimes detrimental of the prime function of the ventilation system :
improve the Indoor Air Quality (IAQ)
Focus on EE sometimes detrimental of the prime
function of the ventilation system : improve the Indoor Air Quality (IAQ)

IAQ & EE Ventilation System

- Refocusing on the prime function of the ventilation system : Indoor Air Quality



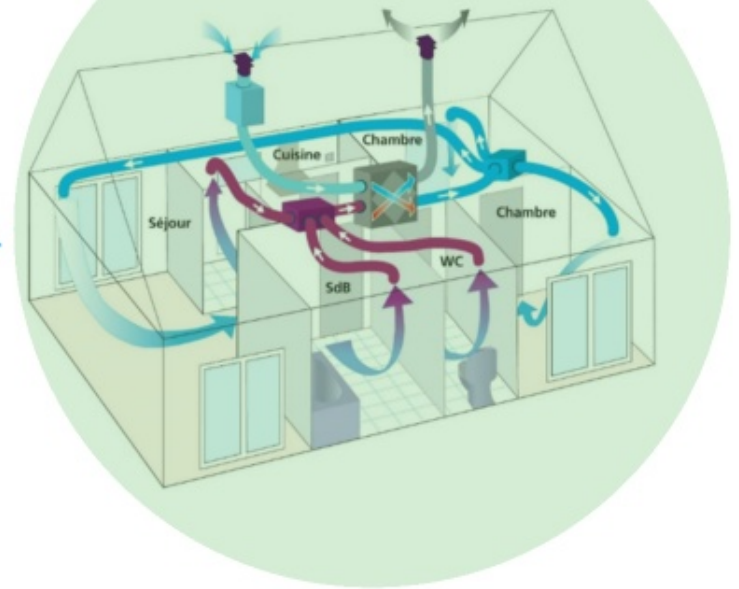
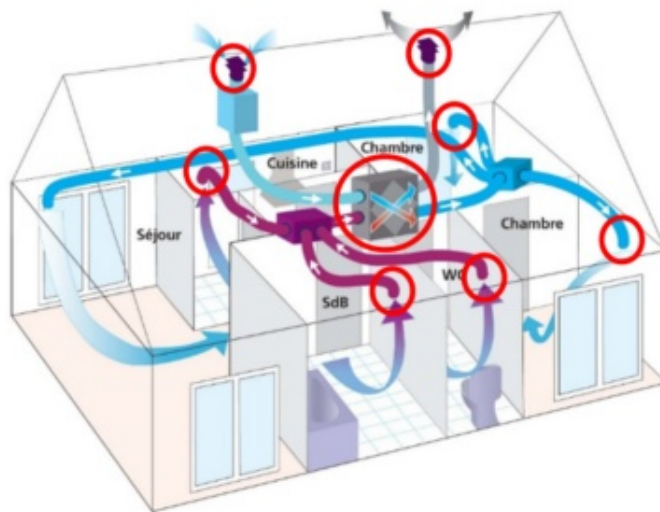
Growing awareness among general population

Indoor Air Quality (IAQ) is the new challenge for the HVAC sector



IAQ & EE Ventilation System

- EU Commission's focus is moving from product-performance to system-performance



IAQ & EE Ventilation System

- Each product taken individually can be good



- But what about the whole ventilation system ?

What did we do about it ?

IAQ & EE Ventilation System

- Eurovent Certita Certification (ECC) decided to **develop a certification programme focused on a system-approach** rather than focusing exclusively on the product

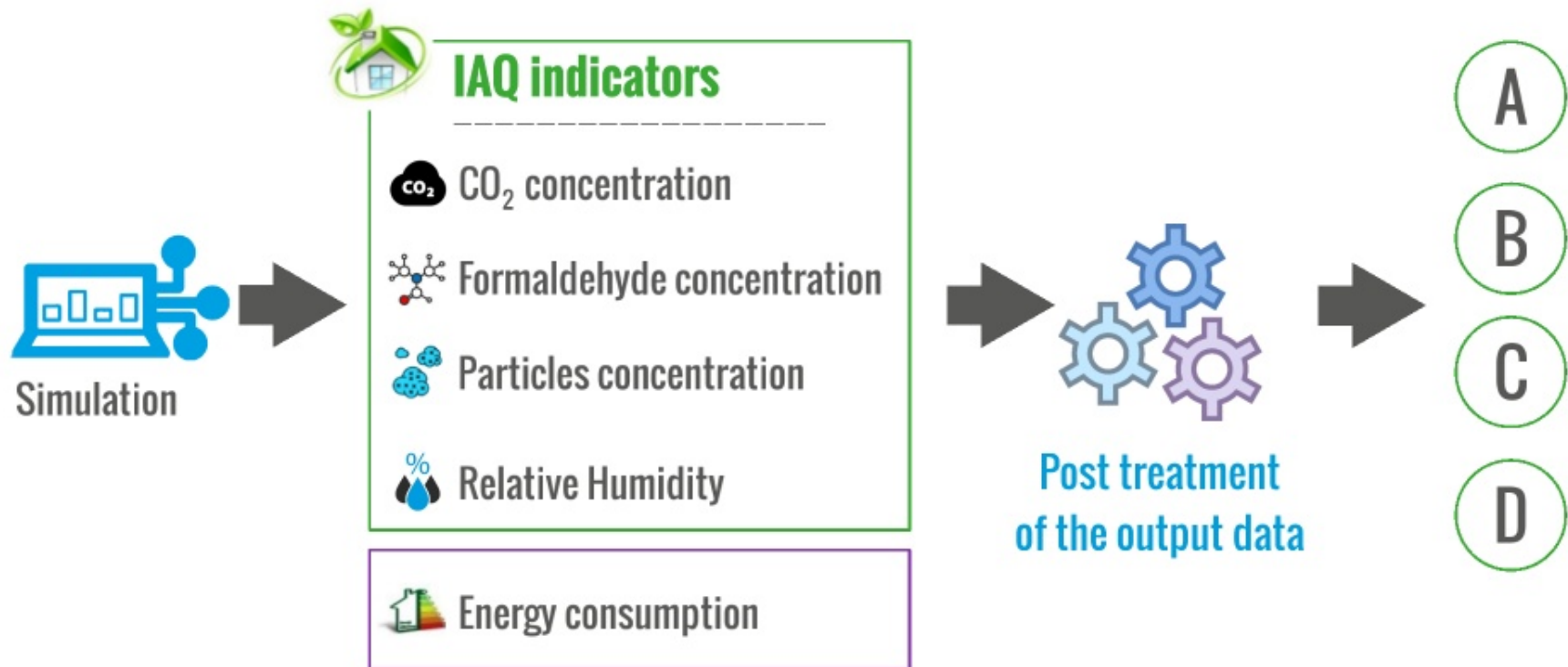


- We launched a call for projects in 2017

- 2 R&D centers chosen
- Feasibility study and preparatory work initiated in 2018



IAQ & EE Ventilation System



IAQ & EE Ventilation System



Manufacturer

Enable manufacturers to **position** their **products** in terms of **energy efficiency** and **indoor air quality**.



Provide their **clients** with **relevant information** concerning their products.

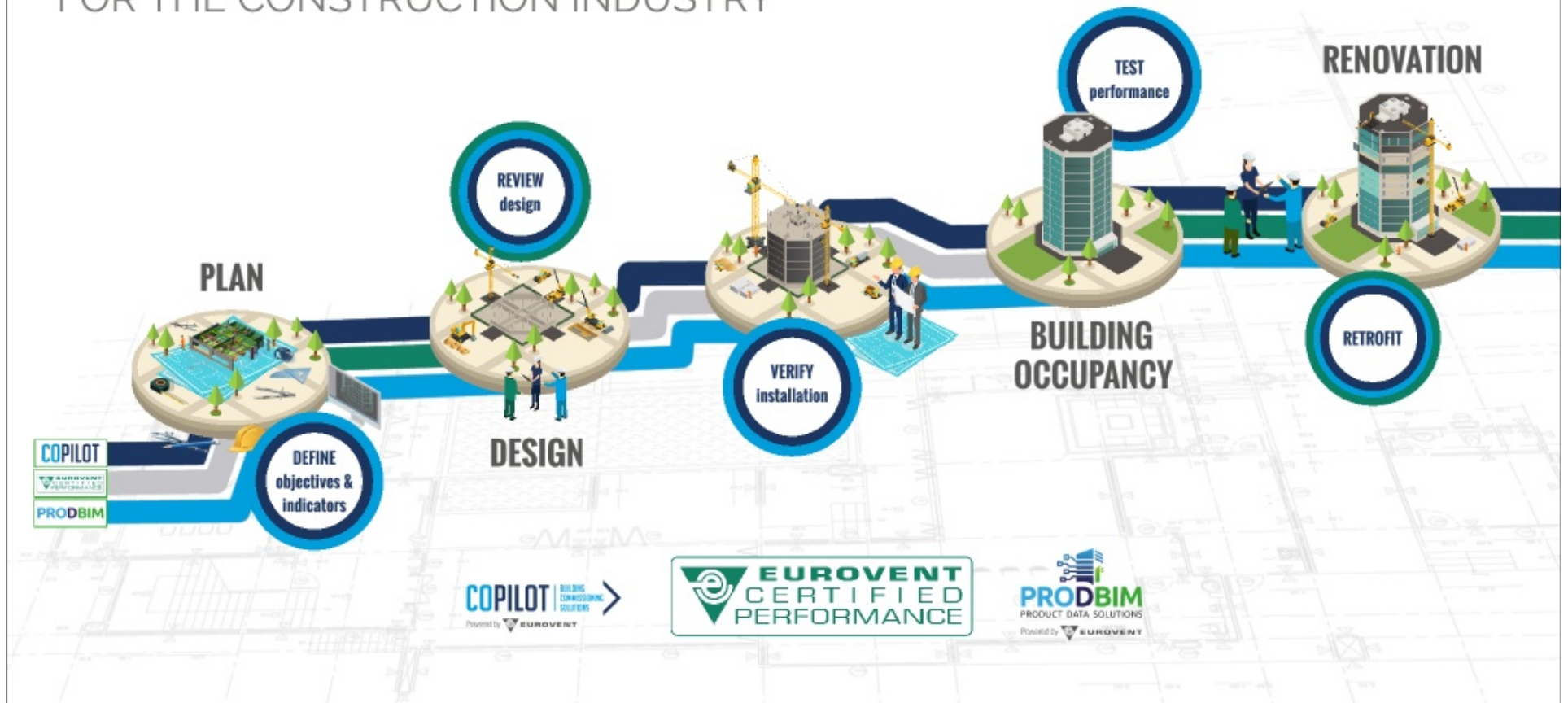


- Ease the product-selection process for building owners, thus benefiting the certified-product manufacturer.
- Decision-makers will “see” the consequences of their choice before selecting the product.



EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY



CONCLUSION



COPILOT | BUILDING COMMISSIONING SOLUTIONS

Powered by  **EUROVENT**

Verify
all projects

New & Existing



All types of buildings

Verify all projects



**Accelerate
your
payback**



“Nothing ever gets built on
schedule or within budget”

Cheop's Law (Robert Heinlein)

THANK YOU

DE-RISK

PLAN

DESIGN
BUILD
OPERATE

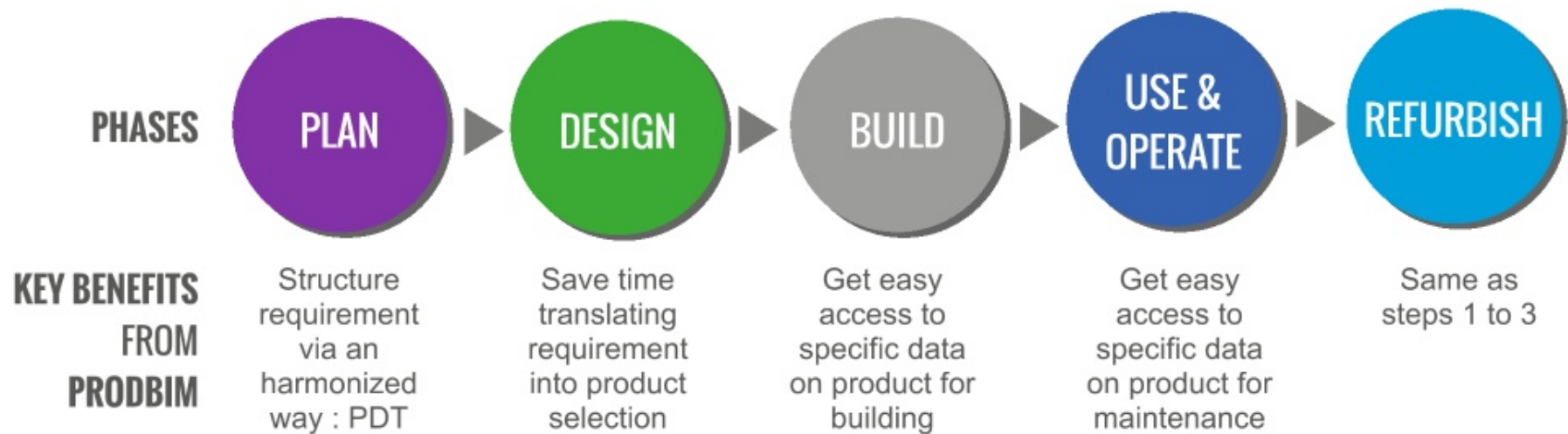
RENOVATE

DE-RISK YOUR PROJECTS WITH COPILOT

Cormac RYAN
c.ryan@copilot-building.com
<https://copilot-building.com>



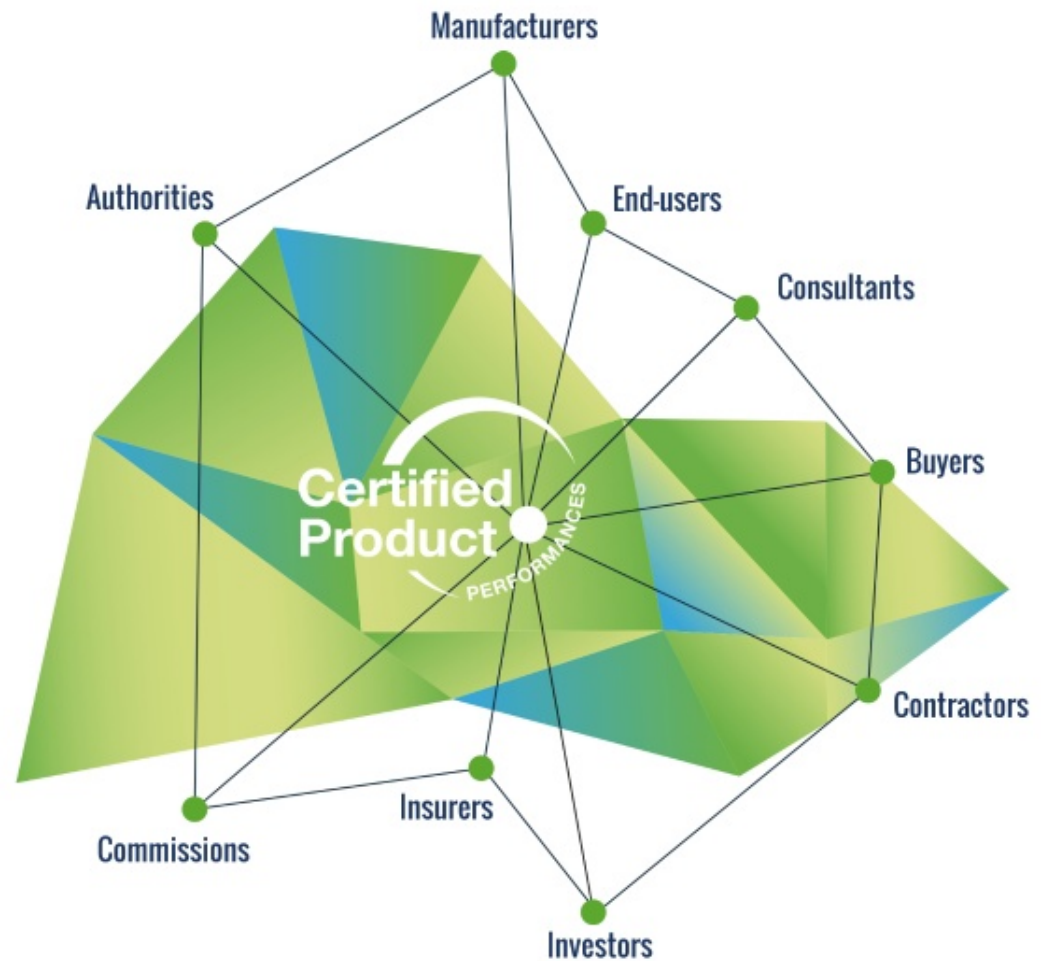
PRODBIM





THE EUROPEAN REFERENCE

Indoor climate
Ventilation & Air quality
Refrigeration & Food cold chain



EUROVENT SERVICES

FOR THE CONSTRUCTION INDUSTRY

