

Introduction to **ALDREN** **AL**liance for **D**eep energy **RE**novation in buildings



ALDREN AlIiance
for Deep RENovation
in buildings



ALDREN & hybridGEOTABS workshop 27.03.2019

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8 European partners are working together

CSTB
le futur en construction




POLITECNICO
MILANO 1863

(research)

CertifeA


aniversari
1986-2016
**Instituto
Valenciano de
la Edificación**

(certification)


ENBEE
Environment & Building Energy Efficiency


Verco

 **REHVA**
Federation of European Heating,
Ventilation and Air-conditioning Associations

(application)



ALDREN 
Alliance
for Deep RENovation
in buildings

ALDREN Resume - why ALDREN ?

- Create a **European quality benchmark** based on **EU CEN standards**

(Building professionals are asking for **comparability, transparency and quality**)

- **Propose Policy support** on EPBD

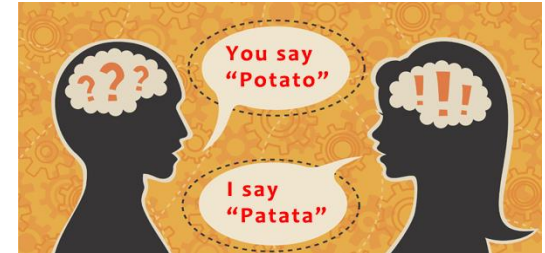
(Help Member State to fulfil **revised** Directive on Energy Performance in Buildings, *building stock observatory, cost effective approaches, building passport, evidence based of expected energy savings, wider benefits, H+W*)

- Work out a **common language** (describing the **holistic approach** in deep renovation)

(how a thermal bridge can talk to a banker?)

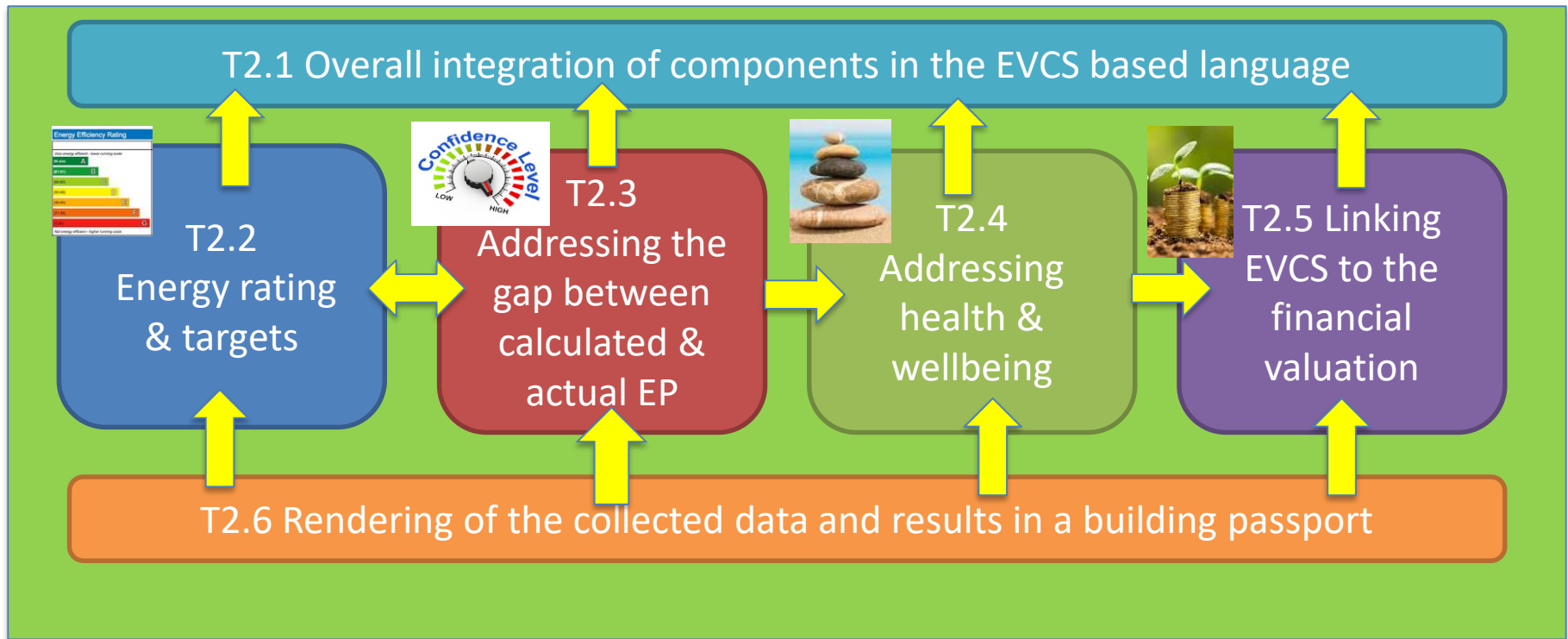
- Set up an **ALDREN ALLIANCE** among **buildings stakeholders**

(**nobody can trigger building energy renovation alone**)
the building owner needs the financial sector, needs the professionals, etc)



The ALDREN outcomes / results

6 tasks for consolidation and adaptation of an EVCS (European Voluntary Certification Scheme) based on a common language



Amended EPBD and ALDREN outcomes (policy support)

DIRECTIVE (EU) 2018/844 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency

	T2.1 Overall integration	T2.2 EVCS	T2.3 Measured energy	T2.4 Health Wellbeing	T2.5 Financial evaluation	T2.6 Building passport	T3.2 Training
Art 1 Amendments Directive 2010/31/EU							
'(1) Article 2							
'(2) Article 2a Long-term renov. Strategy							
'1 highly energy efficient and decarbonised building stock by 2050,							
(b) cost-effective approaches considering potential relevant trigger points							
(c) introducing an optional scheme for building renovation passports;							
(f)... skills and education in construction and energy efficiency sectors;							
(g) evidence of expected energy savings and related to health, and air quality.							

ALDREN outcomes are related to 17 paragraphs of EPBD amendments



How to implement the outcomes

> **ALDREN operational procedures**

- **Articulate the protocols with the deep renovation stages**
- **Identify the data to be collected**
- **Specify responsibilities**
- **Mention or detail reference documents/procedures**

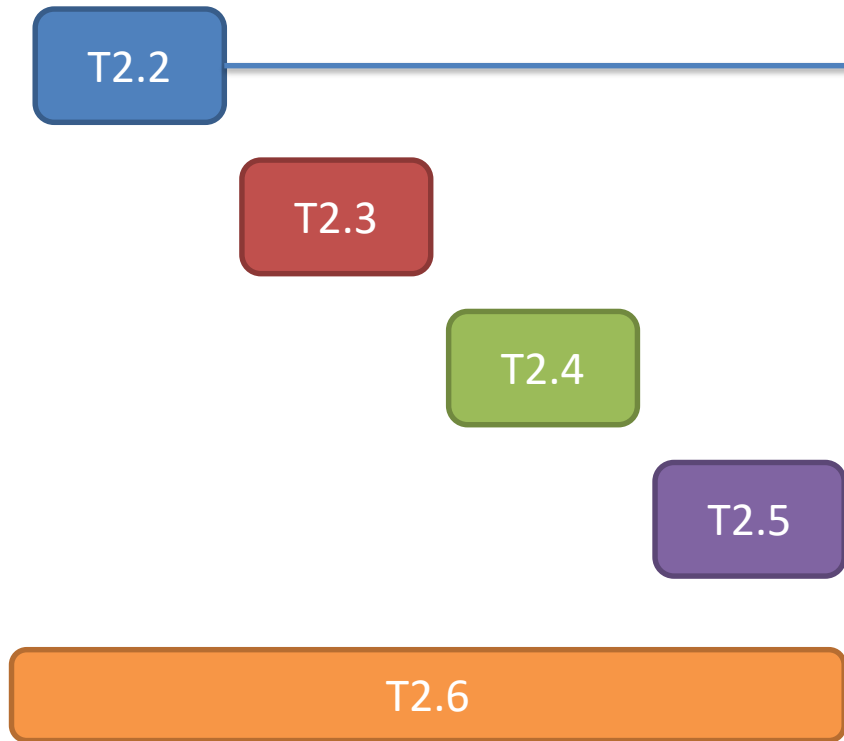
RIBA STAGE	ALDREN STAGE
0_Strategic Definition	DECISION (set requirements)
1_Preparation and Brief	
2_Concept Design	DEVELOP DESIGN
3_Developed Design	
4_Technical Design	DETAILED DESIGN
5_Construction	WORKS
6_Hand over and Closeout	
7_In Use	IN USE

ALDREN use as much as possible existing know-how



Tasks outcomes (T2.2)

Individual tasks outcomes



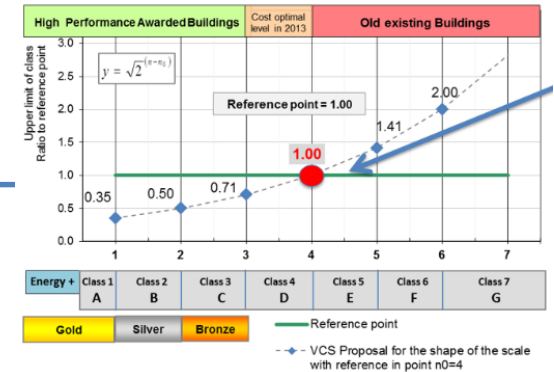
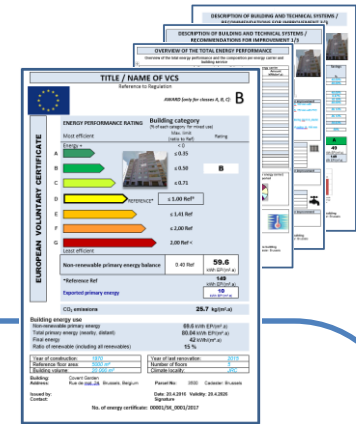
EVCS, Energy rating procedure

(Indicators, targets, scales, reference, **tools**, template)

Offering

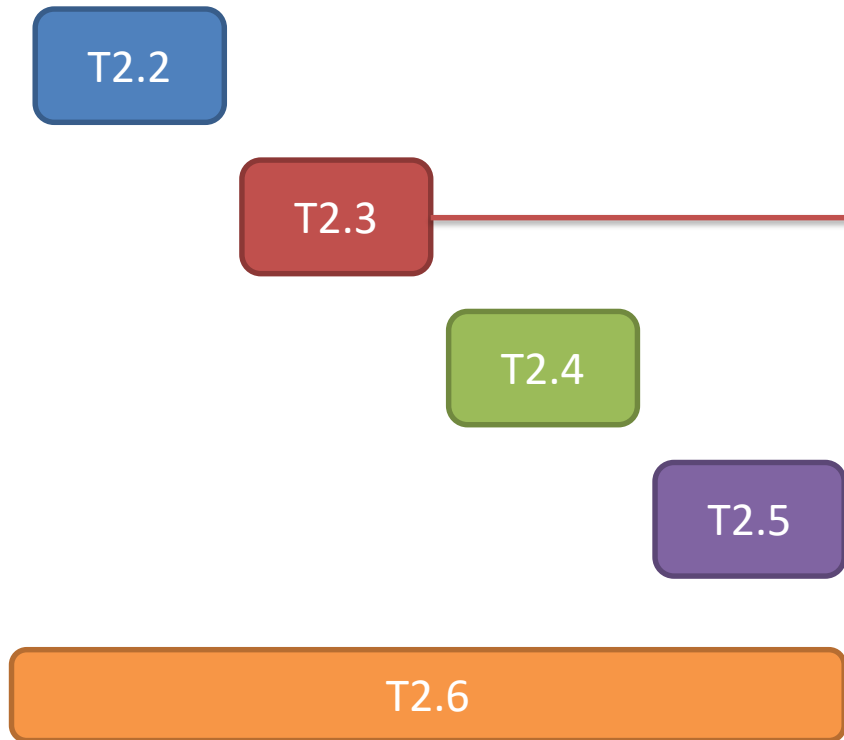
- ✓ comparability,
- ✓ transparency

across EU !



Tasks outcomes

Individual tasks outcomes



Performance verification protocol

(Measurement, metering & verification plan / Analysis of the gap / Predicted energy use under actual conditions / performance target)

Offering

- ✓ confidence (got what has been promised !)
- ✓ enhanced building value,
- ✓ management tools,

RED+ $x > +25\%$
AMBER+ $10\% < x < 25\%$

End use	EVCS - actual conditions	Measured	Variance (kWh)	Variance (%)
Space Heating	8,775,673	5,072,482	-3,703,191	-73%
Hot water	674,887	826,126	151,240	18%
Refrigeration	2,136,180	2,340,840	204,660	9%
Fans	121,605	102,209	-19,397	-19%
Pumps	1,430	1,421	-9	-1%
Controls	1,128,920	980,400	-148,521	-15%
Humidification	1,007,449	1,073,800	66,351	6%
Lighting (Internal)	774,040	822,385	48,345	6%
Total	14,620,184	11,219,664	-3,400,521	-30%

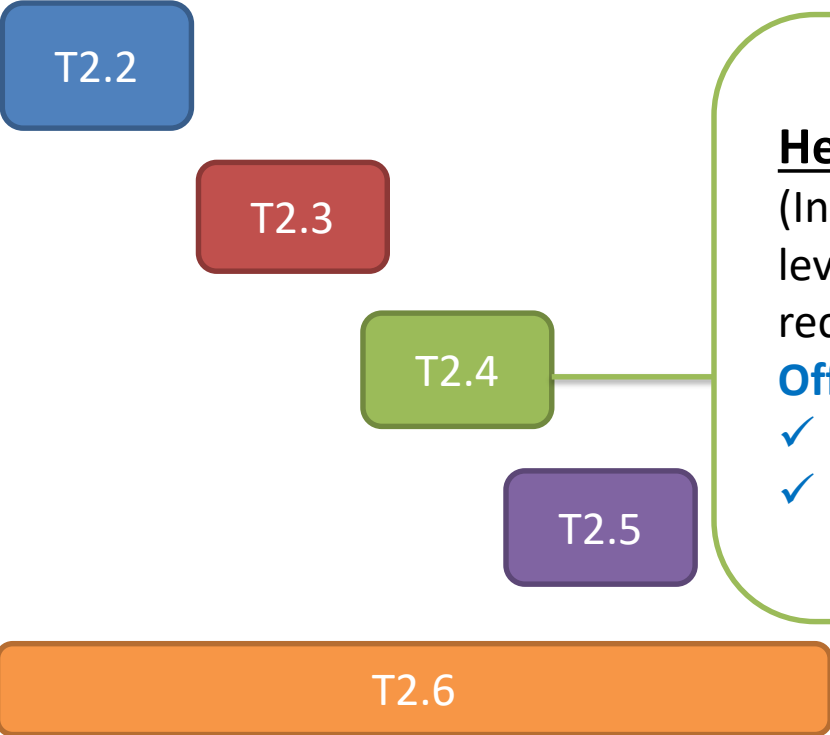
$\leq +10\%$
 $\geq -10\%$
 $> x > -25\%$
 $\geq 25\%$



Tasks outcomes

Individual tasks outcomes

Task	Indicator	Measurement method	Measurement frequency	Measurement location	Measurement unit	Measurement scale	Measurement accuracy	Measurement resolution	Measurement range	Measurement sensitivity	Measurement selectivity	Measurement specificity	Measurement reliability	Measurement validity	Measurement usability	Measurement cost	Measurement effort	Measurement risk	Measurement impact	Measurement benefit	Measurement outcome
Avoiding discomfort related to temperature and humidity	% time within thermal comfort range	PMV/PPD	All times	Indoor	°C	1-5	±0.1	0.1	0-100	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Yes/No
																					Yes/No
																					Yes/No
Avoiding discomfort related to sound	% time within sound level range	LAeq	All times	Indoor	dB(A)	1-5	±0.1	0.1	0-100	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Yes/No
																					Yes/No
																					Yes/No
Avoiding discomfort related to lighting	% time within lighting level range	Illuminance	All times	Indoor	lux	1-5	±0.1	0.1	0-100	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Yes/No
																					Yes/No
																					Yes/No



Health and well-being Evaluation protocol
 (Indicators describing IEQ, predicted comfort levels, satisfaction with IEQ by the occupants, recommendations, ratings, verifications)
Offering
 ✓ Performance indicators
 ✓ benefits on IEQ (non energetic benefits)!

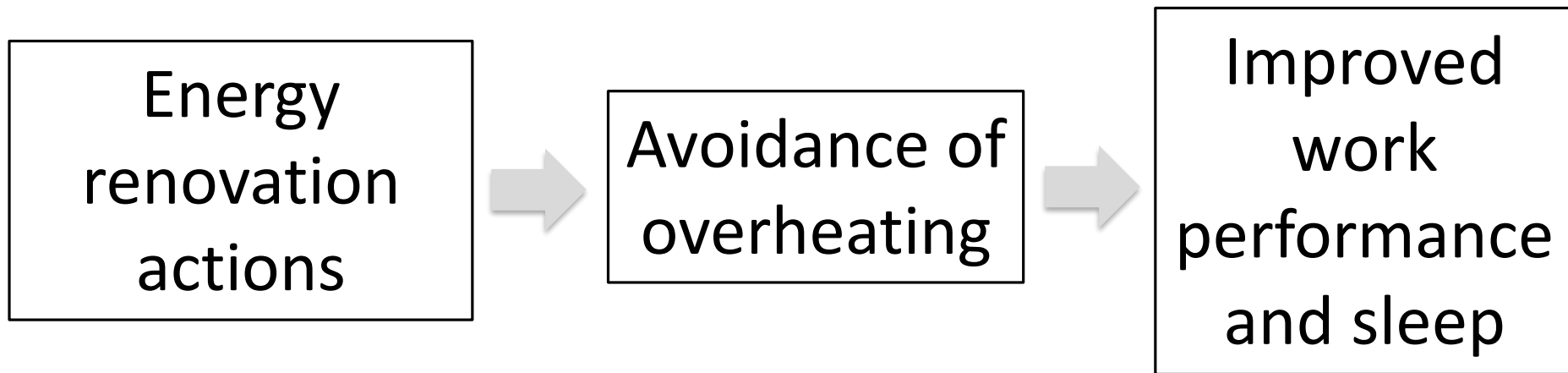


T2.4 Integration of indoor air quality, comfort and health in the scope of deep energy renovation

Deep energy renovation → Energy + Non-energy benefits



Example

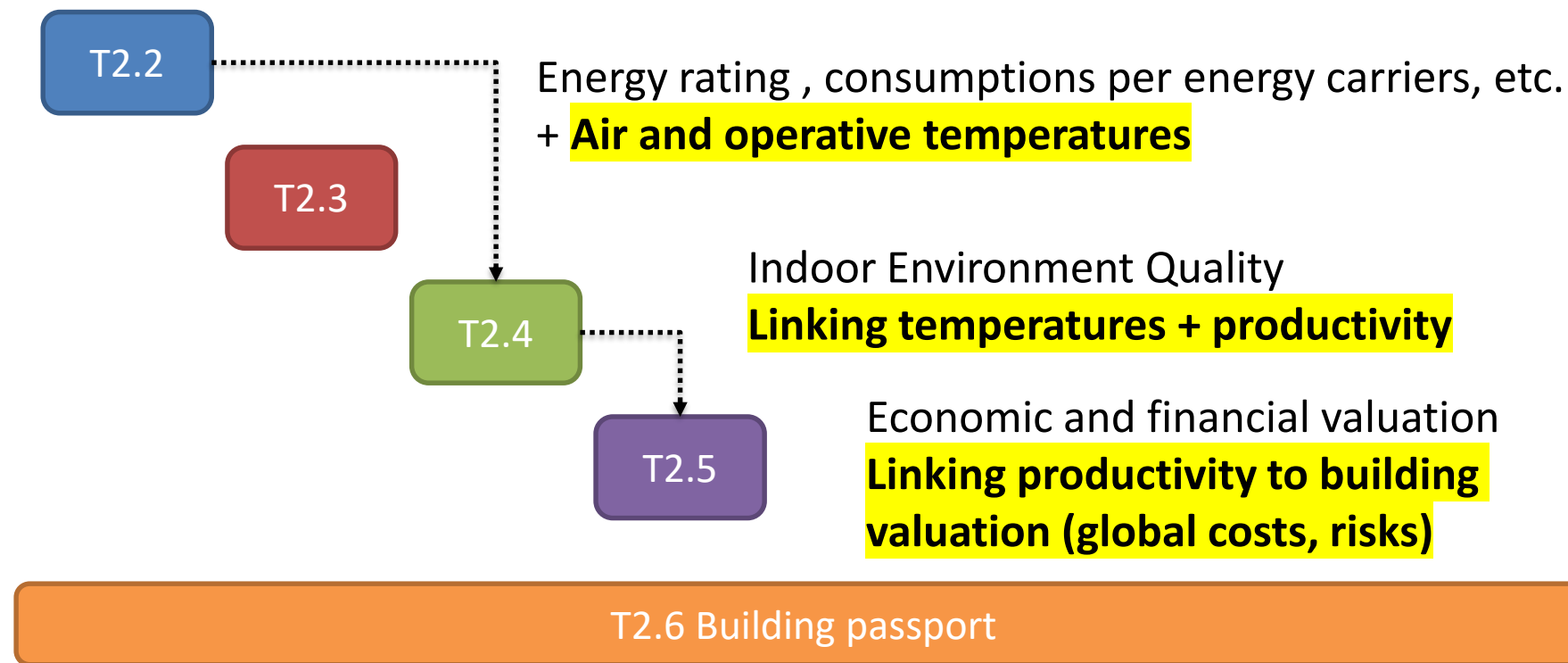


Tasks interactions / integration

(example of the ALDREN common language)

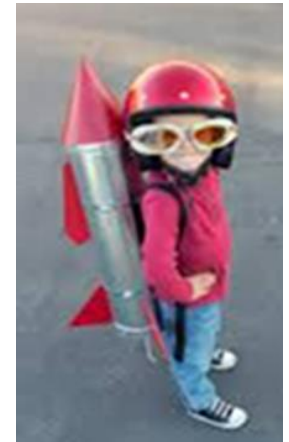
From “energy simulation” to “health & well-being”
to “economic/financial assessment”

(e.g. how a thermal bridge talk to a banker)



Market uptake and roll-out – ALDREN “in-side”

- Can be up taken **as a energy module by existing schemes** (energy rating, EP verification, health & well-being, financial valuation, ALDREN Building renovation passport A-BRP)
 - **HQE** (CERTIVEA is in the ALDREN consortium),
 - **IVE** (IVE in the ALDREN consortium),
 - **BREEAM**,
 - **DGNB**,
- Can be up taken **as a mandatory EPC by EU Member States**



OPPORTUNITIES FOR STAKEHOLDERS

BUILDING OWNERS, INVESTORS, DEVELOPERS

- **gain recognition** for good performance by **EU quality mark**
- take advantage of **comparability, reliability, risk elimination**

FINANCIAL SECTOR

- financing instruments for **energy efficiency investments**
- harmonized procedures based on **reliable benchmark rules**

THE BUILDING PROFESSIONALS, INDUSTRIALS

- **harmonized procedures** (training , tools)
- **harmonized databases** (industrials, building owners)
- **A coherent and transparent level playing field** (technology neutral).

PUBLIC AUTHORITIES

- **Policy support, (save money, common EU approach)**





Join ALDREN

ALDREN  Alliance
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www.aldren.eu

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