



Genova, Mercoledì 25 Maggio 2016
Energy & Smart Building

Riqualificazione energetica di edifici e aree produttive
Esperienze nazionali all'avanguardia

ABRACADABRA: edifici rinnovati ad energia quasi zero
Margherita Scotto D'Appolonia S.p.A



HORIZON 2020

This project has received funding from the European Union's Horizon 2020 Research and innovation programme under grant agreement No 696126
The EU Framework Programme for Research and Innovation

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**Assistant Buildings' addition to Retrofit, Adopt,
Cure And Develop
the Actual Buildings up to zeRo energy,
Activating a market for deep renovation –**

www.abracadabra-project.eu



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D'Appolonia intro



Part of the RINA Group, with a staff of about 1000 engineers, scientists and associated professionals located in 20 offices worldwide, D'Appolonia offers high-end services to investors, promoters, operators and contractors, as well as to insurers and public administrations, to support their initiatives.



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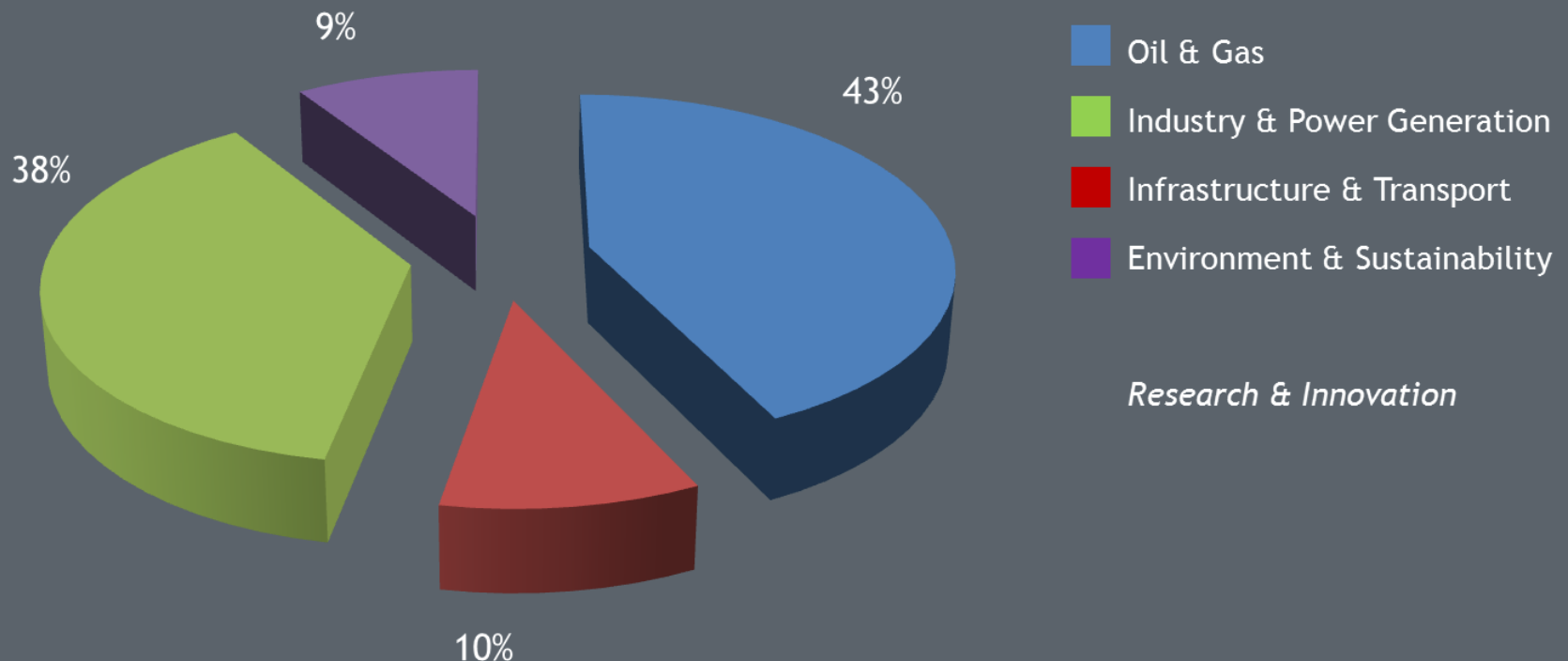
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D'Appolonia markets

Revenue 2015





Problem statement

- Europe's **energy efficiency challenge** in buildings mainly concerns the energy efficient **refurbishment and investments** in its **existing buildings**. Yet, today, only 1,2% of Europe's existing buildings is renovated every year.
- The actual investment gap in the deep renovation sector is due to the fact that high investments are required up-front and they are generally characterized by an excessively high degree of risk, by long payback times and by the general **“invisibility of the energy benefit”**.



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Project idea

High costs in energy retrofitting have driven some experiences at EU level (i.e. SuRE-Fit, Reshape, Solar Decathlon, etc.) as well as pilot cases in Austria and The Netherlands to focus on the strategy of **rooftop extensions and additional volumes** whose economic value in the housing real estate market counterbalances the energy retrofitting costs.



Amsterdam Osdorp – Complex 50 & 117, situation before the intervention
Van Schagen architecten



Amsterdam Osdorp – Complex 50 & 117, renovation project, 2000-2004
Van Schagen architecten



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Project aims

ABRACADABRA aims at

- **market/legislative earthquake** accelerating the revolution towards nearly Zero Energy in existing buildings
- implementing a new, attractive **renovation strategy** based on a multi-benefit approach (substantial **increase** in the real estate **value**)
- involving the **main stakeholders** in the attractive process of a renovation strategy based on new Assistant buildings' addition and Renewable Energy Sources (AdoREs).



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Market actors

Policy makers

KEY FINANCIAL DECISION MAKERS



Economic Investment



AdoRes

RES

Coatings

Plants renewal



Economic Profit
+
Added value



Energy Efficiency
+
Savings

Profit of Investment

Break Even

Environmental/Social
Benefits



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Topics to be tackled

To date, replication of this strategy has been minimal, limited to isolated cases:

- **(i) major legal obstacles exist** in relation to add-ons. They are linked to property rights, condominium law as well as local and urban planning rules
- **(ii) there is a lack of confidence on technical feasibility** of AdoREs (load bearing of buildings, which were not conceived for these additional volumes) -- yet AdoREs may assume different configurations, depending on buildings' type, structural conditions and urban capacity (aside or façade addition, or entire new buildings)



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Topics to be tackled

- (iii) current **regulatory environment** often does not permit these kinds of interventions -- yet, in some countries public-private agreement and legislative rules have been introduced, thus showing a public sector effort to use volumetric addition to incentivize the private market uptake of deep renovation.
- (iv) there is a general **lack of dialogue** among the stakeholders about the possible implementation of **AdoRE**.



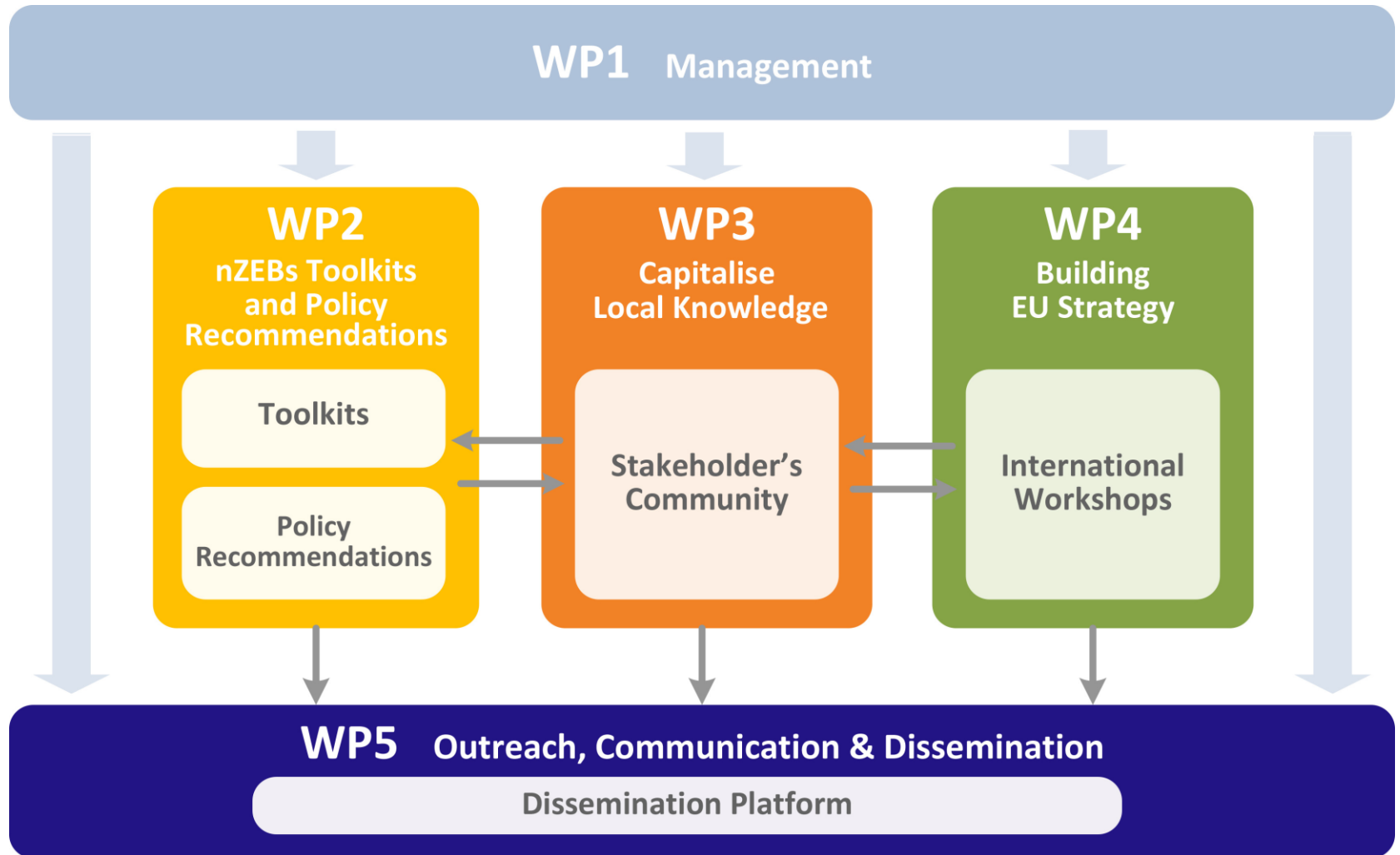
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Project structure



WP2 – nZEB toolkits and Policy Recommendations

Develop **high quality technical, legislative and financial toolkits** focused on nZEB renovation through the AdoRE and documents supporting policies/norms to regulate AdoRE (Tool-Kits and Policy Recommendations) = (TK and PR).

WP3 – capitalise local knowledge

Establish and engage groups of local stakeholders to be committed in National **Stakeholders Community** in discussing and amending draft versions of the TK and PR.

To develop **tender specifications on AdoREs for the 11 selected case studies.**

To design a roadmap of future activities for also further **40 promising case studies**, in order to disseminate ABRA methodology.



Work Packages

WP4 – Building EU strategy

To manage **International Workshops** for elaborating the contributions of the National Stakeholders' Community (SC) and produce harmonised EU documents.

To manage and develop a final specific session dedicated to the contribution implementation of the CA **EPBD**.

WP5 – Outreach, Communication & Dissemination

To facilitate and support the **replication of successful retrofitting** actions during and beyond the ABRA lifetime.

To **disseminate** the results using an open web platform to upload and download ABRA documents.

To involve other professionals of the construction sector.



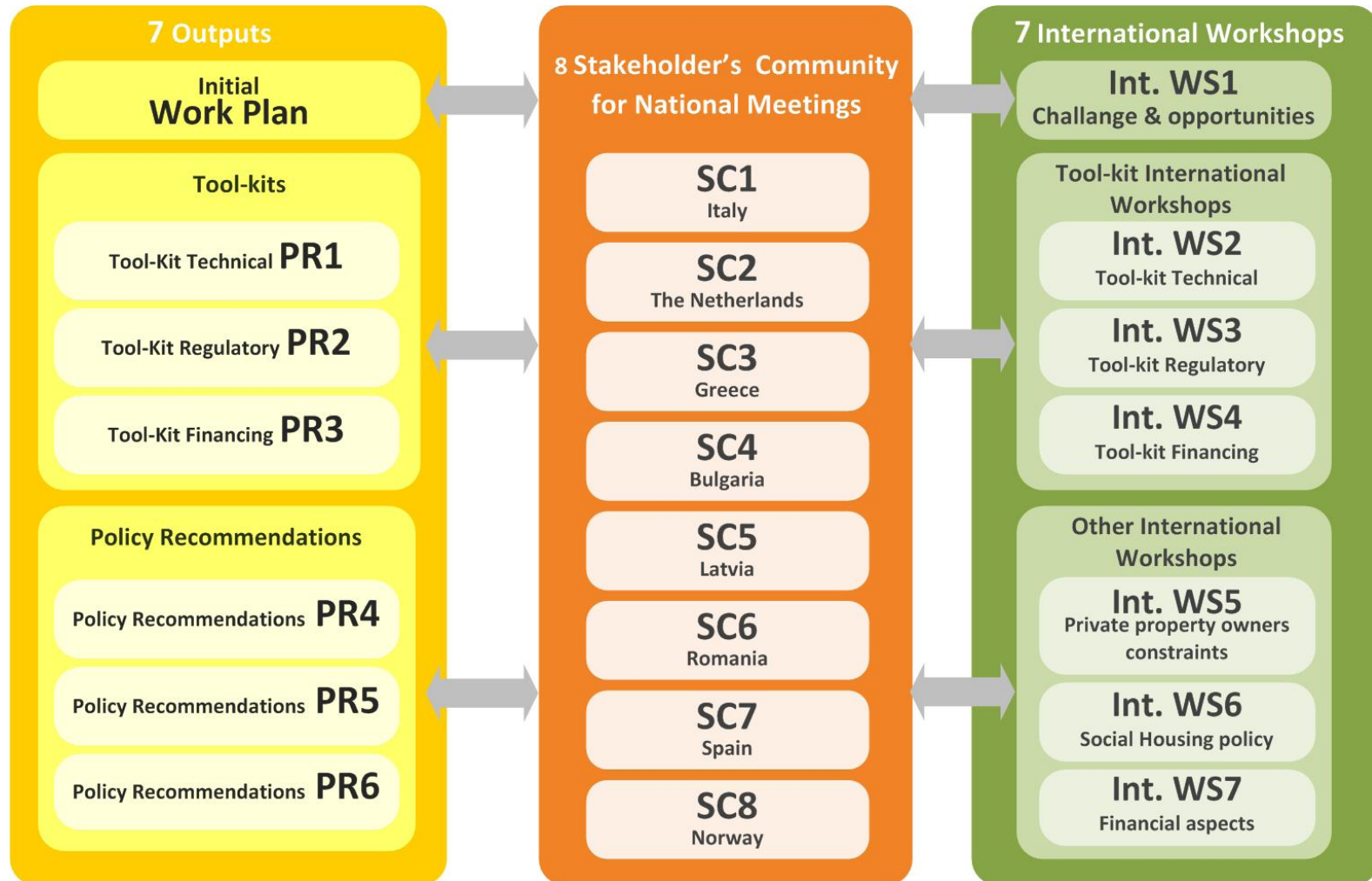
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Work Packages





ABRA Community



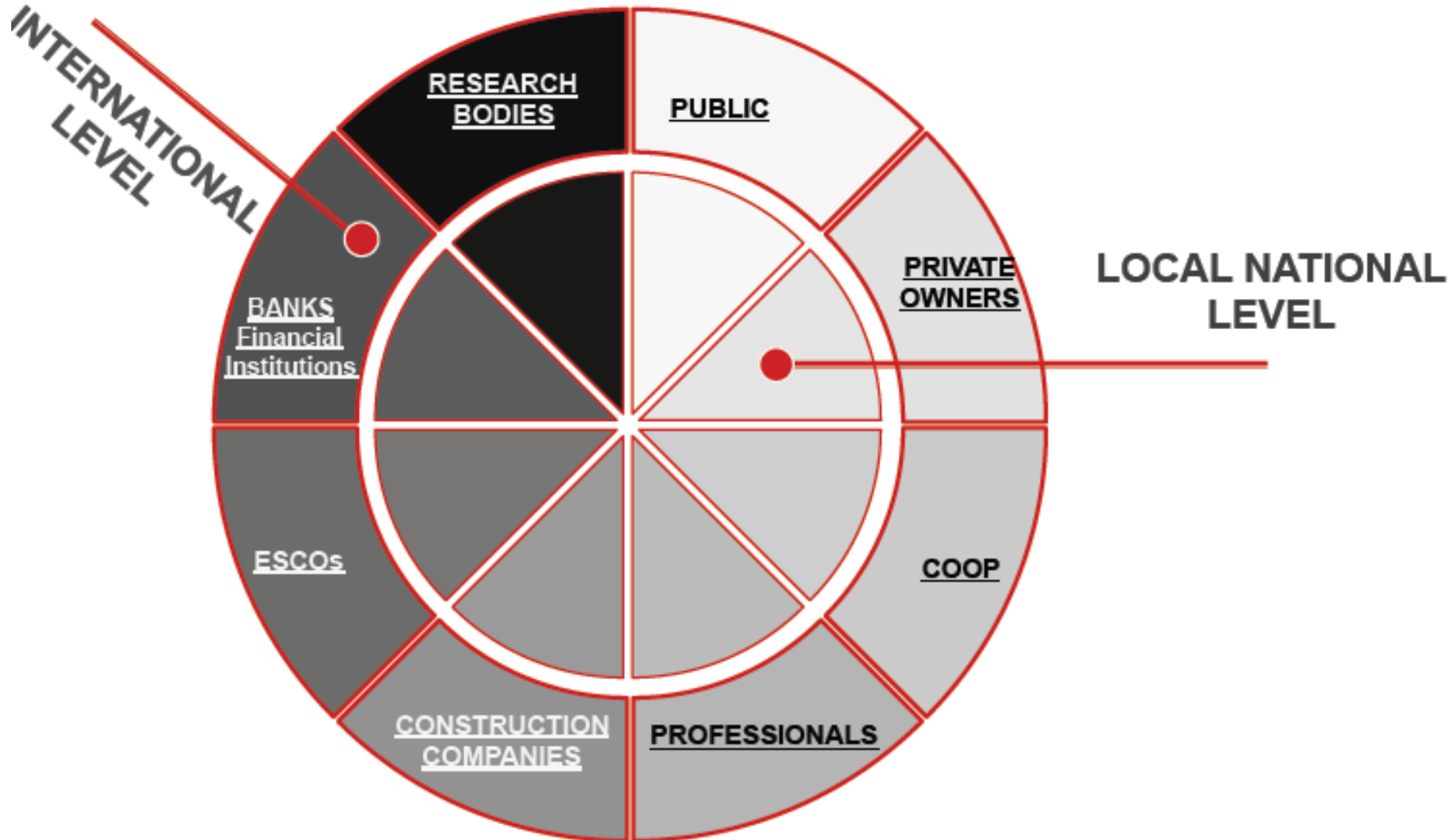
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Target groups





Expected impact

Enabling policy

ABRA will support policies for facilitating the implementation deep renovation strategies through the application of Ado-Res. The project will identify the **key enable conditions to finance deep renovation** of buildings through process and organisation innovation, capitalising the local knowledge through the activation of **motivated Stakeholder Community** at national level

Preparing the ground for investment

ABRACADABRA will identify **the key enable conditions to finance** deep renovation of buildings through process and organisation innovation, capitalising on the local knowledge

Building capacities and skills

ABRA will capitalise existing market actors' and policy makers' knowledge and needs and will try to match and balance these needs to achieve a **long term financing strategy** accelerating the revolution towards nZEBs.



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Existing best practice in Add-ons

<p>NORRLANDSGATAN, 20 Sweden, 2009 Rooftop Addition</p> <p>+500 m²</p> 	<p>ALBY ETAGE Sweden, 2010 Facade Addition</p> <p>+280 m²</p> 	<p>FERNPASS STR. Germany, 2013 Facade Addition</p> <p>+1300 m²</p> 	<p>GRUENTEN STR. Germany, 2013 Facade Transformation</p> <p>+180 m²</p> 
<p>TREEHOUSE Germany, 2014 Rooftop + Facade Addition</p> <p>+2200 m²</p> 	<p>MANDALAHOF Austria, 2008 Rooftop Addition</p> <p>+600 m²</p> 	<p>MANESSE STR. Switzerland, 2011 Facade Addition</p> <p>+2800 m²</p> 	<p>TOIR BOIS LE PRETRE France, 2012 Facade Transformation</p> <p>+600 m²</p> 
<p>TORENFLAT The Netherlands, 2010 Facade and Aside Addition</p> <p>+2000 m²</p> 	<p>DE VALK The Netherlands, 2008 Facade and Aside Addition</p> <p>+1200 m²</p> 	<p>EUCALYPTUSHOF The Netherlands, 2009 Facade Addition</p> <p>+300 m²</p> 	<p>SEGANTIN STR. Switzerland, 2010 Rooftop Addition</p> <p>+200 m²</p> 



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