Deliverable Proof – DEL04 – 1 feasibility study with guidelines for implementation of a crowdfunding scheme for buildings retrofit - EIT-BP2019

Name of KIC project the report results from that contributed to/ resulted in the deliverable	CrowdHO – Crowdfunding for Housing Climate Transition
Name of report	DEL04 – 1 feasibility study with guidelines for implementation of a crowdfunding scheme for buildings retrofit
Summary/brief description of report	The report presents the business cases developed to assess the viability of crowdfunding in the retrofit investment of social housing buildings and the guidelines for implementing them.
Date of report	23/12/2019

Crowdfunding for housing transition

Feasibility study with guidelines for implementation of a crowdfunding scheme for buildings retrofit

Ex-ante assessment– December 2019

DEL.04 – CrowdHO project

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Summary

1 Executive summary

CrowdHO aims at exploring the potential of crowdfunding to support private investments in deep retrofit interventions in public residential buildings, especially when mixed-owned. This ex-ante assessment suggests that crowdfunding could be used to fund retrofit intervention in the social housing sector that aims to reduce the energy costs of the low-income families living in the social housing.

1,619 million families in Italy are to be considered in absolute poverty[1]. In Emilia-Romagna the Social Housing companies (ACER) manage a total of 78,703 homes in 6,404 buildings. Among these 3,289 are publicly owned (55,488 dwellings), 3.115 mixed public-private property (23,215 dwellings) and with a total area of 4.7 M m2. Their energy consumption ranges between 80 and 450 kWh / m2 per year, which corresponds to an average cost ranging from € 600 to € 2500 per year, a discrete sum for low income families.

This analysis started from a series of criticalities found out during the development of a Horizon 2020 funded project, the PDA-LEMON project, which aims to accelerate investments in the social housing sector and able to activate a deep retrofit of social housing stock, increasing the living comfort and reducing the energy costs.

In the Provinces of Parma and Reggio, 620 accommodations were identified in 44 energy outdated buildings managed by ACERs. About 6% of the accommodations are privately owned (37) while the rest are owned by the local administrations and managed by the ACERs. This means that to refurbish the buildings (10) where the private dwellings stand, even if in minor share, it is necessary to involve those families and to take the risk of non-payment affecting the business plan of the contractor. This brings the possibility to pay a lot for the intervention being able to refurbish only a few buildings or, in a worst case scenario, to be unable to intervene and leave mixed-owned buildings in obsolescence.

CrowdHO project enters this phase, facing this issue in order to reduce the percepted risk by the contractor (and therefore its economic proposal for the refurbishment) and to reduce the risk for low income families to be unable to face the cost and lose their property. Especially the hypothesis of having families end up in a street is inconceivable for the social inclusion goal of public housing system. The criticalities emerged from LEMON business model has been analysed and used to develop energy upgrading scenarios and to study the potential role of crowdfunding in activating or accelerating the investment, also through the integration of crowdfunding instruments (lending and equity) with traditional forms of finance (e.g. bank loans, third party financing).

CrowdHO considers two different scenarios:

- Lending crowdfunding, the form of crowdinvesting where people can lend money to ACER in order to activate the investment in retrofit projects and reduce the risk for the contractor, covering for the risk of insolvency of private owners in mixed-owned buildings.
- Equity crowdfunding, the model where small / medium sized businesses can increase their competitiveness and reach the capacity to propose building stock's renovation and participate in public tenders for the redevelopment of public residential buildings.

The ex-ante assessment explores the ways in which private investors participate to the energy redevelopment through crowdfunding, reducing the public investment requirement. People can get interested in the above mentioned means of financing to invest in a more profitable investment

[1] Federcasa-Nomisma 'Social mediation in Erp management', 2016

system than the bank account, although the main purpose should be the social impact generated by their savings, analysed deeply in both the scenarios.
This study is solely focused on the suitability of the lending and equity crowdfunding means to support the energy retrofit. Although there are other crowdfunding sources that could be used to boost urban regeneration and social impact in specific neighbourhood contests, such as reward and donation, the means analysed here are the ones that can be classified as a proper form of economic investment.

2 Brief overview on the energy efficiency of the social housing sector

The social housing sector in EU manages over 26 million homes (11 % of existing dwellings in Europe).
In Italy it represents about 5% of the national housing stock[2]. According to Officinæ Verdi Group's report[3], more than half of it is classified as high energy consuming, meaning that families spend more than 10% of their income in electricity and gas, due to low efficiency and one of the highest energy costs in Europe (+17% compared to the average in other countries).
The Federcasa-Nomisma survey 'Social mediation in Erp management' shows that in Italy there are 1.708 million Italian households living in a situation of economic housing hardship and the assets of public residential buildings amount to just over 850,000 dwellings. Moreover the study highlighted that in Italy the resources dedicated to social policies manage to reduce the number of households at risk of poverty by about 21%, compared to a European average of 33%.
In Emilia-Romagna, Social Housing Companies (ACER) manage a total of 78,703 homes in 6,404 buildings. Among them, almost 70% needs an energy efficiency refurbishment and the energy demand range is between 80 and 450 kWh / m2 per year, which corresponds to a yearly expenditure from 600 € to 2500 € for single household.

[2] Istat
[3] Gmh4.0, Il Green Social Housing: Una Rivoluzione Sostenibile, 2017

3 The strong retrofit model for the social housing sector: LEMON project

3.1 The LEMON approach to tackle the social housing sector

LEMON's objective is to move away from the logic of redevelopment for each building and to carry out a large investment programme to retrofit a large social housing stock in the provinces of Parma and Reggio Emilia, increasing tenants' living comfort and reducing energy expenditure.
As mentioned in the executive summary, these dwellings were identified in 44 buildings. Among the total of 620 apartments, 37 are privately owned and located in 10 of the 44 buildings. All the others are owned by local administrations and managed by ACER.
On the basis of the building's energy performance and the objectives of the local administrations and the ACERs, energy retrofit projects have been developed through feasibility studies, allowing to define the interventions and the costs of energy requalification. Based on this initial audit, the sum of the interventions should lead to a saving of 3,300 MWh per year, meaning 42.2% compared to the current consumption and an average of 400 €/year per family.

3.2 Experiment innovative financing models for social housing retrofitting

There are a number of different types of funding available for the ACERs to make the energy retrofit investment of the social housing buildings more sustainable. The complexity lies precisely in the integration of different forms of financing, including ERDF funds, national financing from L.80, national "conto termico" incentives and loans.
The project wanted to accelerate the upgrading investments and test new financial models. The development of the Energy Performance Contract (EPC) tender for the buildings retrofit was the most complex element of the project. Through the EPC tender, an ESCo (i.e. the energy performance service provider) was identified to carry out the retrofit and improvement of energy efficiency of plants and buildings at its own expense, partly using its own financial means. LEMON represents the first case of EPC tender implemented in the social housing sector.

3.3 Involve the ACER tenants in the business model

The social housing tenants represent the final beneficiaries of the intervention who have the possibility to reduce energy costs and improve their quality of life inside the houses. The 30% of the energy saving is in fact left to the tenants (120€/year), while the remaining part will be paid by the tenants back to ACER to support the energy retrofit through the increasing renting fee.

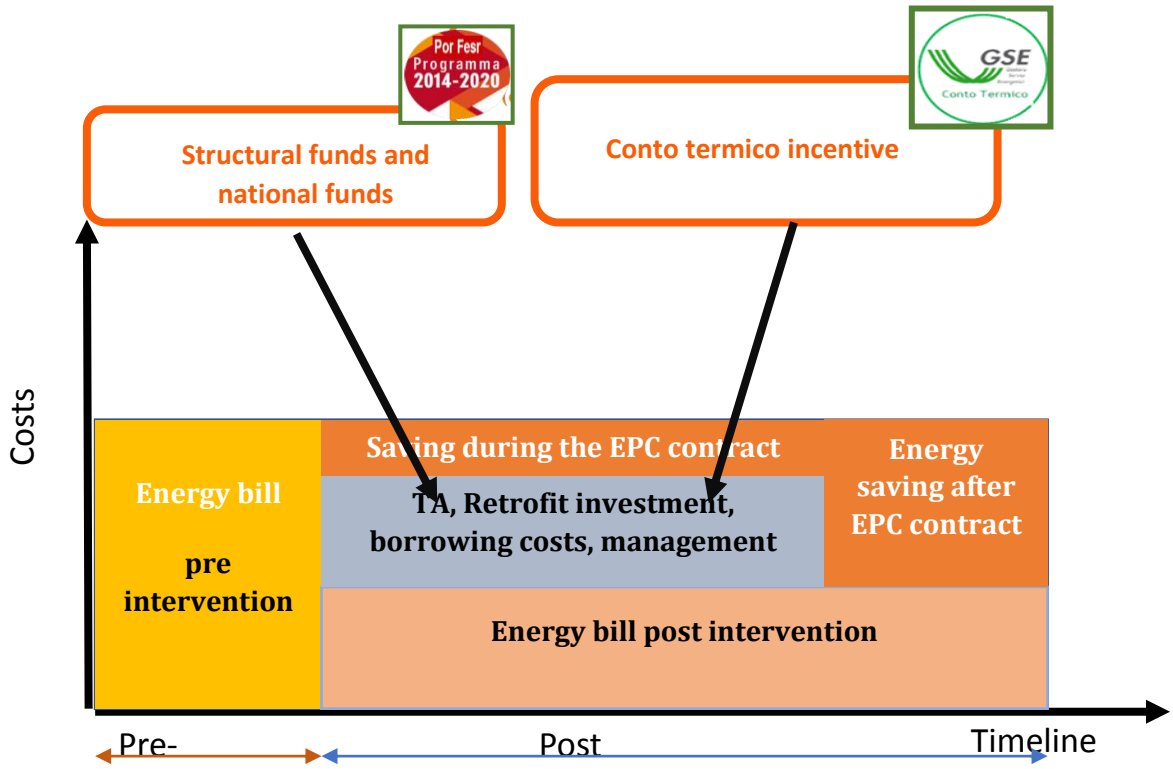

Figure 1: EPC business model

3.4 The Energy Performance Contract approach

The Energy Performance Contract (EPC), according to the definition given by Legislative Decree 102/2014, is a contractual agreement between the beneficiary or whoever exercises the power to negotiate for it and the supplier of an energy efficiency improvement measure, verified and monitored during the entire duration of the contract, where the investments (works, supplies or services) made are paid according to the established level of energy efficiency improvement or other agreed energy performance criteria, such as financial savings.
Companies providing this type of service are called ESCOs, as an acronym for 'Energy Service Company', and are companies that provide energy services or other improvement measures of energy efficiency in the user's installations or premises and, in doing so, accepts a certain margin of financial risk. The payment for the services provided is based, in whole or in part, on improving energy efficiency achieved and on the achievement of the other established performance criteria.

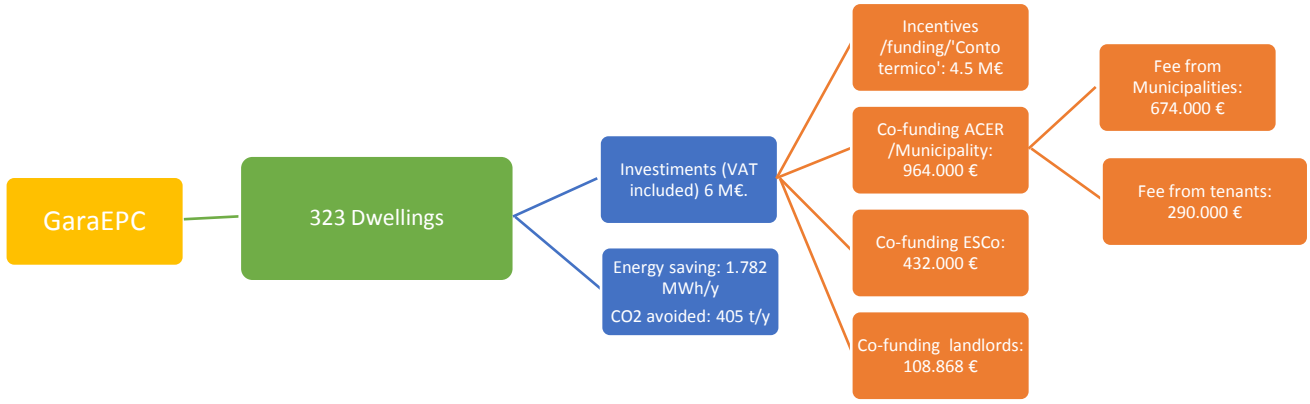

Figure 2: Lemon business model

3.5 The impact of the project

The LEMON project numbers are the following:

- 27 Municipalities involved in the provinces of Parma and Reggio Emilia and 52 private owners;
- Energy audits and feasibility studies in 625 housing, 92% publicly owned and 8% privately owned. Of the 625 dwellings, 73% have independent boilers and 27% have centralised systems;
- Application for regional structural funds obtaining €2,336,861 for the energy retrofit of the buildings;
- 1 EPC tender for the identification of 1 ESCo for the implementation of the investment and the achievement of the savings target in housing: redevelopment 323 housing
- Further 14 work tenders for the energy retrofit of 197 dwellings retrofit in the provinces of Reggio Emilia and Parma
- A total of €9 million mobilised for energy investments. This sum is a mix of different financing forms: regional financing (Law 80 and Structural funds), national incentives (Conto Termico for public buildings and tax deduction for landlord), public financing (share of co-financing of municipalities in some cases advanced by ACER), ESCos and tenants (EPTA).
- In total the project achieved 3.300 MWh of energy saving , about 40% compared with the baseline of the energy consumption, and 750 t of CO2 avoided. In economic terms it achieved 400 € of energy costs saved per each family.

3.6 Business model barriers

The barriers identified by ESCos in the LEMON tender were principally the following:
LEMON foreseen a deep retrofit of the buildings and many interventions (about 90%) related to the envelope, e.g. insulation and windows, leaving only a minor share to the heating system update and / or substitution. In addition, most of the heating systems are autonomous boilers, meaning no intervention to be scheduled on them. The ESCos are companies coming from the sectors of installation and maintenance of supply systems and their core business is on their substitution plus energy supply. Therefore in the LEMON case ESCos have to subcontract most of the work with the result of low profit margin;

ESCos do not consider incentives like 'Conto Termico' secure budget entry, incrementing the need for a higher margin in the economic plan projecting. Considering Conto Termico a non secure entry makes the refurbishment difficult to be undertaken, therefore a solution is necessary;
The presence in the apartment building of a mix of social housing tenants and private owners increases the risk for the ESCo, that considers the private owners as an issue and a high risk of nonpayment. ACERs, being public bodies, cannot guarantee directly for private owners, with the result of an increase in the ESCo's economic plan.
Adding together all the previously indicated barriers makes the refurbishment impossible to be taken on. This is seen as a real problem, especially when thinking about ACER social inclusion's leitmotif and the hypothesis of having families end up in a street or living in an uncomfortable and energy demanding flat.

The first barrier can be surpassed proceeding with two different refurbishment methods, or rather through EPC for most of the buildings and through works contract for the ones unappealing. The second barrier can be faced through ACER's exposure, which can anticipate the Conto Termico

and take charge of completing the procedure, having the resources to do so. The last issue is more difficult to be undertaken, because in addition to the higher cost, very significant in itself, there is the risk of exposure of private owners.
Proceeding even if the cost is becoming unaffordable brings many cons, like the possibility to refurbish only a small number of buildings with the municipal budget, the risk previously mentioned of exposure for the private owners due to the economical effort with no adequate payback period and an extra-exposure for ACER that can be dangerous for the flexibility of the Social Housing system.

As described, the business case of LEMON highlighted a missing piece, a need for innovative financing solutions in order to boost the accessibility to funding and to speed up the access to money by private owners in mixed-owned buildings: the crowdfunding instrument can be the right tool to fix this gap, thanks to the opening to the “crowd” of investors.
In particular, according to the barriers to be faced, the crowdfunding could provide to the investment a means of support in order to:

- Decrease the perceived risk for the ESCo, co-funding the investment related to the private owners;
- Attract capital, that would be invested elsewhere through bonds or bank titles, to sustain the refurbishment of social housing stock;
- Allow the citizens to help out redeveloping their neighbourhood, raising their quality of life and capitalising savings in return
- Allow different companies, such as building and maintenance ones, integrating the competences for the building retrofit.

4 Crowdfunding: a suitable tool for funding social housing retrofit

Since its first appearance on the European market in 2009, crowdfunding has increasingly become a reliable financial mechanism that has allowed business ventures as well as non-profit organisation to raise funds to achieve their goals and implement specific initiatives. Furthermore, the intrinsic flexibility of crowdfunding[4] has enabled both profit and non-profit organisations across the spectrum of different business sectors to approach and benefit from this innovative way of financing.

In order to identify past patterns, trends and potential future relevance of the application of crowdfunding mechanisms aimed at financing social housing retrofit intervention, a mapping report has been developed at the beginning of the CrowdHO project. In line with the hypothesis formulated in the beginning of the study, however, the mapping activity has shown that such application could not be identified in either a consistent or occasional fashion in EU Member States[5]. On the other hand, the underlying assumption on the innovation potential of crowdfunding for social housing retrofit has been tested and has found validation through a number of interviews conducted with representatives of different European crowdfunding platforms. The great majority of surveyed platforms declared that they were interested in following up with CrowdHO activities and developments, and that although they had not explored it yet, the market of social housing retrofit could represent a significant area of expansion for their business models. Finally, the same respondents have explicitly mentioned that they would be willing to host social housing retrofit projects on their respective crowdfunding platforms in the future, if they would come across such an opportunity[6].

In light of the above mentioned considerations and of the current state of the art for crowdfunding in the field of social housing retrofit, the most relevant element for this section of the study is the role that crowdfunding has so far played in providing access to finance for renewable energy, energy efficiency, and real estate projects.

4.1 The crowdfunding equity and lending investment structure

Although crowdfunding is often presented as a unified industry, there are a number of elements that allow for a significant differentiation within the sector and among crowdfunding platforms. The definition provided by the Joint Research Center of the European Commission identifies the main elements that are common to all those operators and actors that move within the crowdfunding industry, and summarises them as follows:

"Crowdfunding can be defined as an open call for the collecting of resources (funds, money, tangible goods, time) from the population at large through an Internet platform. In return for their

[4] Main crowdfunding models can be identified in equity, lending, rewards and donation, but a significant – although not exhaustive - number of sub-models and applications is presented in the Cambridge Center for Alternative Finance Report 2019

[5] Cfr CrowdHO Mapping Report, DEL02, September 2019

[6] Cfr CrowdHO Mapping Report, DEL02, September 2019

contributions, the crowd can receive a number of tangibles or intangibles, which depend on the type of crowdfunding"[7].

Taking the elements included in the JRC definition as common to the entire crowdfunding industry (internet-based mechanism, small economic contributions to specific projects/initiatives from a large crowd of people, presence of tangible or intangible benefits for each contributor), for the scope of this study two models have been identified as most relevant: equity crowdfunding and lending crowdfunding.

LENDING

The structure of this crowdfunding model is similar to every typical lending scenario: individuals lend money to a company (peer-to-business lending) or to an individual (peer-to-peer lending) with the expectation that the money will be repaid with interest. The peer-to-business model is a relevant one for positive cash-flow companies (mostly SMEs) that can credibly assure lenders of being able to pay back the loan. Lending crowdfunding is the leading model in terms of volumes in Europe, and the average amount raised by single projects ranges between 50.000 - 2.5 million EUR[8].
The due diligence conducted by lending platforms on each project (assessment and preparation phase) is quite extensive and analyses the credit history, as well as the track record of the business proposing the project. Once the project is assessed, the interest rate of the loan is determined by the risk of the investment: the riskier the business, the higher the interest rate. In lending-based crowdfunding campaigns, the relation between investors and project owner (business seeking to raise funds on the platform) extends per definition beyond the duration of the campaign. Once the funding round is successfully closed, the investor will remain tied to the project for a longer – yet clearly defined – time period, at the end of which the initial investment will be entirely repaid, together with the financial return determined by the interest rate. Most lending crowdfunding platforms adopt a model where the initial capital, and a percentage of the total interest, are repaid on a monthly basis, as to gradually reduce investors' capital exposure to risk of defaults.

EQUITY

This model is best suited for – but not limited to – companies (start-ups or scale-ups) with strong business plans. It works by the sale of shares in a business or revenue share to a number of individuals (investors) in return for capital. In addition to institutional and professional investors, this type of crowdfunding allows individuals to become retail investors and therefore co-owners of the business by lowering the entry tickets to the investment (as low as EUR 250, depending on the project/platform). Among the crowdfunding models, it is the one with the highest degree of risk, as co-ownership in the company normally might entail a complete loss of the invested capital, as well as participation in the company's profits. For this reason, the average amounts raised by individual projects through equity crowdfunding range between EUR 100.000 – 600.000.
The assessment and preparation phase in the equity model foresees the reception of resolution on a capital increase, approved by the Board of Directors of the company proposing the project. As the pre-money evaluation of a company determines the price of the shares sold through the

[7] Understanding Crowdfunding and its Regulations. How can Crowdfunding help ICT Innovation?, Garry A Gabison, Joint Research Center, Luxembourg: Publications Office of the European Union, 2015
[8] ECN industry data, collected through a survey of ECN Platform and gold Members (https://eurocrowd.org/directory-of-members/)

crowdfunding campaign, platforms might further require evidence[9] from companies to support pre-evaluations that seem unreasonable. As in lending-based crowdfunding campaigns, the relation between investors and project owner (businesses seeking funds on the platform) extends per definition beyond the duration of the campaign but doesn't foresee a clearly defined end for such relation. Investors will see their commitment to the company (and viceversa) when an exit opportunity is provided and accepted, or when they decide to sell their shares in the company to a different investor. A major obstacle that investors in equity crowdfunding deals must face at the moment is the illiquidity of the market, due to the absence of a regulated secondary market – i.e. shares of the company acquired through an equity crowdfunding campaign are difficult to sell at a later stage as there is no common marketplace, therefore limiting the possibility of investors of recovering their capital (and possibly an additional amount due to profit sharing) if needed.

As mentioned in the JRC definition, both crowdfunding models allow investments to a wide number of people, which fall under different categories of investors. At present, each Member State can define the requirements that each investor must fulfill in order to be included in one of the relevant categories, and therefore to which obligations and benefits each category is subject to. Such categories have been established prior to the emergence of crowdfunding as an investment tool, and are linked to different investors' protection rules and limits on the overall percentage of wealth that investors can dedicate to financial operations. In the traditional financial system, financial operations are generally delegated to **professionals** and/or **institutional investors** (Venture Capital funds, business angels, brokers, banking institutions, etc.), who would either invest their own wealth for profit, or manage individuals' savings as to increase their value over time. The appearance of crowdfunding on the European investment landscape has given a new and more prominent role to the category of **retail investors**, which include all those "small savers" that can now make their own investment decisions, supported by a different set of investor protection rules and incentivised by the opportunity of investing very small amounts of their savings.

4.2 How crowdfunding can support investment in the social housing building retrofit sector

Equity and lending models have proven to be flexible enough to adapt to a wide range of requirements.

From the perspective of those entities seeking to raise funds, both models can onboard projects that vary in terms of investment needs and deal size, as well as obligations and conditions linked to each of the two different crowdfunding models adopted. In equity, for example, the company might be willing to sell part of their shares if it's still in the early stage of development or wants to launch a spin-off with separate capital. In the case of lending, on the other hand, the company might be resistant to diluting its capital among a large number of small investors and could prefer a loan with a slightly higher interest rate over a predetermined period of time.

From an investor's perspective, at the same time, each crowdfunding platform can offer a number of projects in which investment is possible, so that each investor's risk appetite can be matched with sufficient accuracy, and portfolio diversification is incentivised. Furthermore, the existence of a lending-based and an equity-based model provide the investor with an additional option for risk mitigation and portfolio diversification, as lending is considered to be generally less risky and more time-limited if compared to equity crowdfunding.

[9] Such evidence can include, but is not limited to, proof of the market size, financial performance and background of the company's team.

The specific scenario of social housing building retrofit is still to be explored through crowdfunding, but it is possible to make three general assumptions on the potential role of crowdfunding in the context of this study, which will then be further explored in the scenarios presented in section 5.

Crowdfunding represents an injection of private (fresh) resources, for a sector that is not deemed as interesting from the usual pool of professional/institutional investors.

In general terms, professional and institutional investors are more likely to invest in those ventures that provide a balanced ratio between risk of capital loss and potential gains, represented by an interest rate or the estimated yield over a determined period of time (maturity). In the specific context of social housing retrofit, this approach faces two major obstacles. The first obstacle is represented by the low profitability of the asset in which the investment takes place: retrofitting a social housing building does not foresee an exit strategy where the asset acquires value after the intervention, and the incentive embodied by the potential gains is therefore quite weak in the eyes of a traditional investor. The second obstacle refers to the high risk of insolvency of tenants and homeowners in a social housing context: the possibilities of a bank issuing a loan to complete the retrofitting of a social housing building would be extremely limited, as the risk of insolvency could either inflate the interest rate applied to the loan, or prevent it from being issued at all.
In relation to the above mentioned situations, the inclusion of crowdfunding in the financing scheme for social housing building retrofit interventions presents two main advantages. In the first place, crowdfunding investors do not necessarily seek to obtain huge profits from their initial investment, as small savers tend to prefer more conservative investment profiles and might even be deterred by investments that promise extremely high yields or interest rates, as they know that the underlying risk could be much higher. In the second place, the opportunity of investing only a very small portion of their wealth, alongside a large number of small investors from the crowd, reduces each investor's exposure in case of failed repayment or loss of capital, therefore diluting risk among participating investors and reducing to a minimum the possibilities of unsuccessful funding.

Crowdfunding could move the burden of building retrofit from socially fragile people to a large number of wealthier, small investors.

The inability even of a single homeowner to contribute with its share to the budget required for a retrofitting intervention might block the implementation of such intervention as a whole, therefore preventing all other tenants and owners from benefiting from the reduced consumptions and other advantages. The integration of crowdfunding in the funding scheme for retrofit interventions might act as a "reliever" of the financial pressure put on each homeowner in a social housing context, and enable the deployment of the planned intervention at the needed time, without unduly delays. More specifically, the opportunity of raising small amounts of money for a specific intervention (lending campaigns can raise a minimum average of 30.000 EUR in the peer-to-business model, and a minimum average of 2.000 EUR in the peer-to-peer model) could lead project owners (ACER, in this specific case) to raise funds through crowdfunding (primarily lending) in order to cover the costs for those homeowners who could not otherwise afford to provide their financial contribution to the retrofitting intervention. Once the funding is obtained and the retrofitting is finalised, homeowners who have benefitted from the coverage provided by the crowdfunding campaign could start paying back the amount in small steps, which could even be linked to the lower consumption costs linked to the retrofitting intervention.

Small investors could benefit from national schemes of fiscal incentives for energy efficiency.

In addition to the risk dilution effect that crowdfunding can provide, a second incentive for small investors might be represented by the national fiscal incentives that apply to investments in energy efficiency or renewable energies projects. There have been some experiences at national level in France and in Spain[10] where the investment from the crowd has been met with a reduction on their tax declaration to a certain extent, and this model is proving to be more and more successful as to engage a larger number of citizens in the energy transition process. In the Italian context, a similar scheme has already been designed and applied to investment in innovative start-ups and SMEs,[11] and benefits have therefore been applicable also to retail investors through crowdfunding platforms. The design of a similar scheme applied to the Italian social housing context might produce similar beneficial effects as it has already done in Spain and France.

4.3 The legal/policy framework of crowdfunding in Italy

The regulatory framework for crowdfunding in Europe has been characterised, since its early days, from a high degree of fragmentation among national regulations, which has hindered greatly the further development of the crowdfunding industry to date. Fortunately, recent developments at the European level have led to the approval of the European Crowdfunding Service Providers Regulation (ECSP)[12], proposed by the European Commission in order to, among other objectives, enable cross-border transactions and operations of crowdfunding platforms within the Single European Market, and to provide a somehow standardised set of minimal investor protection rules across the European Union.[13] The implementation of ECSP across all Member States will represent a major step in the development of the crowdfunding industry and will amplify benefits and opportunities for all parties involved, but such implementation will only become effective in the years to come. For the scope of this study and in order to provide concrete reference to stakeholders and interested parties in the adoption of a crowdfunding mechanism, the focus will be on the overview of the current Italian regulatory framework for crowdfunding.

By publishing the 2013 regulation on equity crowdfunding[14], Italy was the first country in Europe to recognise the role of crowdfunding as a separate financial mechanism and to encompass its specificities and needs in a separate piece of regulation. The opportunity to raise funds through an equity crowdfunding campaign was initially restricted to Italian innovative startups and SMEs, which would in turn enable investors to benefit from fiscal incentives up to 30% of the amount invested in each specific deal.

Later amendments and evolutions in the Italian equity crowdfunding regulation, informed by market trends based on transaction volumes and positive impacts on access to finance for startups and SMEs, have led the Italian regulator CONSOB to open up the possibility of raising

[10] Cfr CrowdHO Mapping Report, DEL02, Case studies section, Goteo and Enerfip, September 2019
[11] CONSOB, Delibera n. 20264 of 17/1/2018
[12] European Commission, Proposal for a Regulation of The European Parliament and of The Council on European Crowdfunding Service Providers (ECSP) for Business, COM(2018) 113 final 2018/0048 (COD), March 2018
[13] For further information on ECSP and its implications for crowdfunding platforms, businesses and investors, please see *Support for – and Proposed Improvements to – the European Commission Proposal for a Regulation on European Crowdfunding Service Providers (ECSP) for business,* European Crowdfunding Network, July 2018; *Position Paper of the European Crowdfunding Network,* European Crowdfunding Network, October 2018; and *Position Paper of the European Crowdfunding Network*, *Trialogue Stage,* European Crowdfunding Network, October 2019
[14] Law Decree No. 179 of 18 October 2012, passed into Law No. 221 of 13 December 2012 as further amended.

funds through a crowdfunding campaign also to those start-ups and SMEs that would not qualify as *innovative* as per the existing definition in Italy.[15] Such development has not only fostered the development of the crowdfunding industry in the country, but grants the possibility of including crowdfunding into the social housing building retrofit funding context.

Lending crowdfunding, on the other hand, has not been granted a dedicated regulation by Italian authorities, and has instead been regulated by extending the applicability of existing regulations as to encompass also Peer-to-Peer and Peer-to-Business lending activities.[16] ,[17] The reason behind this choice is to be found in the structure of lending crowdfunding, which can be more easily redirected to the general scheme of loans operations, and has so far not compelled the main Italian banking authority (Bank of Italy) to discipline it in an entirely different manner.
In 2019, further updates to the Italian equity crowdfunding regulation have been implemented as to reduce the uncertainties linked to the illiquidity of equity crowdfunding. In this perspective, CONSOB has included in the current regulation the possibilities, for equity crowdfunding platforms, to provide their investors with a separate section of the website in which they can trade shares acquired through crowdfunding campaigns offered through the same crowdfunding platform.[18] This evolution must be read not only as a natural development of a growing market, but also as an effort to further promote the uptake of this alternative financing tool by offering investors the opportunity of trading their shares at any given moment, in a sort of secondary market for equity crowdfunding.

[15] CONSOB, Legge di Stabilità 2017 (Legge 232/2016)
[16] Bank of Italy defines lending crowdfunding as *social lending,* (Decree 584/2016)
[17] Bank of Italy (resolution 584/2016): recognition of social lending activity (P2P and P2B)
[18] Legge di Bilancio per il 2019 (Legge 145/2018), as reported by the 4th Italian report on CrowdInvesting, *4 report italiano sul CrowdInvesting, Osservatorio Enterpreneurship & Finance,* Politecnico di Milano, Luglio 2019

5 CrowdHO business cases and scenarios

5.1 Stakeholders analysis and potential impact of the CrowdHO project

Buildings are one of the greatest energy consumers in Europe, responsible for 38% of all CO2 emissions. CrowdHO means to face this issue, focusing on social housing. Its building stock is one of the most impacting on CO2 emissions due to the dimension of the holdings and the low insulation of walls. In addition, social housing also faces major social issues: almost 30% of the families are in an economic situation of poverty - below 17,000 € per year - which makes it hard for them to face costs from high bills. Furthermore, about 35,000 tenants are still in waiting lists for the assignment of a flat, but less than 3,000 apartments are assigned every year due to waiting time for refurbishment operations.

Social housing organisations – and in particular ACER Reggio Emilia as case study - are aware that to fight against fuel poverty and unpaid rent, as well as to reinforce the quality of life in their housing stock, they have to propose their tenants dwellings that are renovated and that consume less energy, in order to reduce the annual charges. Energy efficiency measures and bioclimatic design strategies are developed in order to improve thermal comfort in this social housing framework and to reduce energy consumption and expenses of their residents. Implementation of energy efficiency would improve the income situation of the poorest strata of the population.

Although there is still no universally agreed definition for the concept of energy poverty, it is often defined as a situation where individuals are not able to adequately heat, or provide other required energy services in their homes, at affordable cost.
One of the objectives of the project is to address energy poverty through energy saving measures for buildings or through refurbishment with energy performance contracting models.

To finance the renovation works, social housing organizations usually rely on public subsidies, meaning that they start to renovate the building stock only after a regional or national tender providing subsidies for the operation is published. Other means on which they currently rely are bank loans and own resources; access to own means must be considered as a last resort, since banks ask for high interest rate - ACER has few properties, making it difficult to be bankable - and the internal resources are limited and necessary to integrate the public subsides.
Other means that are being experimented in the last few years and on which social housing system is aiming for, are Private Public Partnerships, of which Energy Performance Contract (EPC) is part and to which crowdfunding can be integrated to in some way.

EPC is surely the best way to face the renovation of many buildings, thanks to the possibility of diluting the repayment of some of the expenses along the years through the collections from energy bills, therefore allowing to renovate more buildings with the same budget.
The experience of LEMON uncovered some criticalities in EPC contract tendering, and while the project was able to solve most of them, a number of hindering elements have been not yet addresses, especially in situations where further private capital is needed, as to allow the housing renovation to start or to increase its renovation rate and offer advanced energy services.
In light of all the above mentioned reasons (see chapter *Crowdfunding: a suitable tool for funding social housing retrofit*), crowdfunding, can represent an effective tool to finance the “missing pieces” and get closer to both the objectives of decarbonisation and social inclusion.
To understand its potentialities and to involve all interested parties in a possible future real scale project, a selected group of stakeholders has been involved in a series of workshops aimed at understanding and addressing criticalities and potentialities of crowdfunding t, especially for what concerns crowdinvesting categories.

5.2 CrowdHO board activation

To understand in a clear way the potential of the crowdfunding instrument to achieve the initial objective of renovating social housing buildings with difficult financial outlooks, a first fundamental step has been to establish a co-design board, namely the CrowdHO board. Great attention has been paid to the composition of the board and to its thinness in order to be complete and agile.The participants fall into the following categories:

- beneficiaries (social housing associations, first of all ACER Reggio Emilia), for the presentation of the case study and the experience in the challenges to be faced
- investors and developers, in order to asses which can be the potential barriers to the realization of the investment
- crowdfunding platforms, for the definition of the process and the attractiveness of the campaign
- financial institution, for the identification of integrated instruments for the provision of public AND private loans or other financial instruments.

Before the formal activation of the board, experts have been consulted to define which models could best suit the scope, identifying lending and equity crowdfunding as the most fit for purpose. The first idea was to choose between them and proceed to analyse only one in detail..
The CrowdHO board, however, decided to analyse the models in parallel, approaching them as facing two different problems:

- lending crowdfunding as a support for ACER and private fragile owners
- equity crowdfunding to increase small / medium ESCOs competitiveness in the market.

5.3 CrowdHO lending scenario for social housing retrofit

This scenario is based on the lending of capital through crowdfunding platforms, which are involved as financial intermediaries. The platforms promote the project looking for credit and will act as a lending intermediary by providing the required amount through the collection of resources from many investors. The project receiving the loan will then repay to each investor the amount that it has collected through the platform, plus an interest over a determined period of time. In other words, lending crowdfunding is characterised by investors providing funds in exchange for the right to have their money paid back with interest, according to the repayment terms specified in the loan contract or debt security.
The aim of this instrument is to reduce the perceived risk for the ESCO. One of the actors co-participating in the investment are private fragile owners that, according to ACERs feedback, tend to have an insolvency rate comparable to social housing tenants as well as low access to credit, without loans all the risk would fall on the ESCO's side, which would therefore need to significantly increase the profit margin or even give up the work.

To reach a balanced division of the risk and increase confidence among investors, this scenario needs a strong commitment from the public beneficiary, ACER. In its capacity as a public body, it has to first identify the most suitable crowdfunding platform/s through a public consultation; then it has to be extremely effective in defining and programming the interventions and the investments, including its payback period. Thirdly, it has to interact with and involve directly the private owners, who must be engaged in the repayment. FInally, ACER has to develop the repayment scheme (e.g. Transfer of credit to ESCO or bill payment) as well the provision of integrated instruments to provide a guarantee that covers the loan and subsequently reduces the risk for the investor.

About guarantee instruments, ACER is working deeply on the realisation of an internal fund to be generated from bidding discounts in refurbishment works. This should interact with the national guarantee fund for SMEs and work as a support for the lending crowdfunding tool in a percentage ranging from 15% to 30% of the private share of the investment. With this tool, in addition to facilitating access to credit, it would be possible to minimise the weight on the private owner's income by adjusting the investment payback period and charging the owner of a monthly amount as close as possible to the energy bill's saving. In this way he wouldn't feel the additional cost for renovation.

An extremely important component of any lending scheme is the composition of the investor's side. The investor can be identified in any individual citizen with an interest in investing its savings so that its investment can produce an impact on the community. A second potential pool of investors can be identified in local companies or cooperatives implementing Corporate Social Responsibility schemes (CSR), which could be interested in investing in social projects that support fragile people with difficult access to credit.

Lending scenario key-data	
Objective	to facilitate financing for fragile private owners in the refurbishment process of social housing buildings, by reducing the risk of investment for ESCOs.
Campaign promoter	ACER
Size of campaign	min. 30.000,00 Euro
Investors	private citizens or companies, not necessarily local
Individual investment size	min. 500,00 Euro; max. 5.000,00 Euro
Steps	1.ACER develops a multiannual energy retrofitting plan, including mixed-owned buildings. 2.ACER selects, through a public tender, a lending crowdfunding platform to define minimum investment conditions and financial charges for project promoter and owner (platform fee, interest rate range, need for guarantee, ...) 3.ACER defines an Economic Financial Plan in order to put the refurbishment in place, checking for the right intervention to reach a feasible payback period and selecting the best way to provide guarantee to those that may invest in the project (necessary to keep the interest low, around 3%). 4.The crowdfunding platforms participate to the public tender showing interest and, once selected as final beneficiary of the tender,, become responsible for promoting the projects and managing the relations between investors and ACER 5.ACER – as promoter of the campaign - presents the refurbishment project on the platform, indicating the social scope and all the information previously determined. 6.Investors participate in the crowdfunding campaign by lending money at a certain interest rate (hypothetically between 3 and 3,5%) and for a pre-defined period corresponding to the payback period (usually 7 to 10 years)

7.Private owners return the loan, balancing its cost with the money saved thanks to the energy upgrading intervention

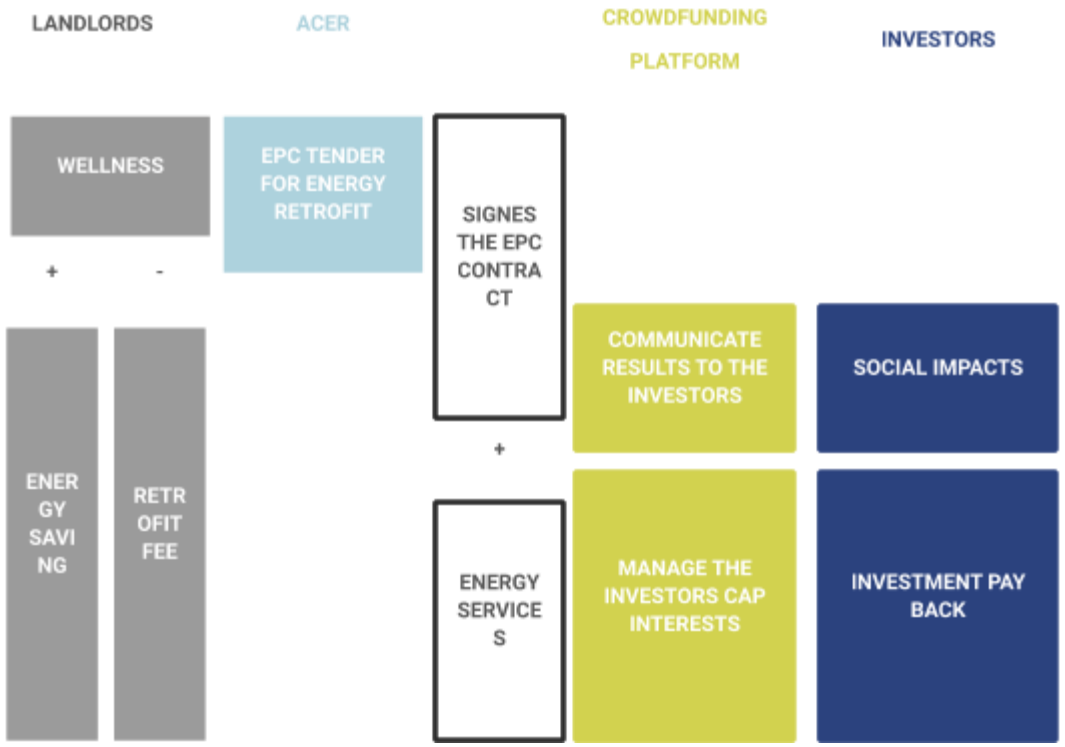

Figure 3: CrowdHO lending business model

Positive aspects

- Strengthening of alternative finance and reduction of the concentration of risk for financial institutions
- Easier access to credit for people with no bankability
- Stable cash flow & returns: It is easier to predict the backflow compared to other means such as crowdequity.
- Less risk: Instead of investing in a company, lending money usually generates a minor risk and opens up for investment diversification.
- The duration of loan is specified clearly, so it's easy to know how long the investment will run if the loan is paid on time.

Negative aspects

- Returns are capped: You know exactly what interest rate will be paid if the loan is paid back in full. Without a guarantee and in case a borrower misses payments, late fees can increase the return a little bit.
- High maintenance: The administration of borrowers and transactions requires ongoing maintenance, which might result in high fees. Shorter investment duration means that the monthly repayments will require money reinvestment

Key points for an effective measure

- Preventive audits and business plans, together with a strict timeline, are required. This means an investment of time and skills before proceeding with the refurbishment (public selection of the platform, public tenders for the energy retrofit programme, etc)

- The “impact” has to be declared and clearly recognisable as the leitmotif. Investing in these projects is profitable but can be less remunerative than investing in other fields. The investor has to know that will invest in it for cultural and social reasons.
- There is need for guarantee instruments in order to keep the interest rate low and affordable for the economic plan.

<u>The process</u>

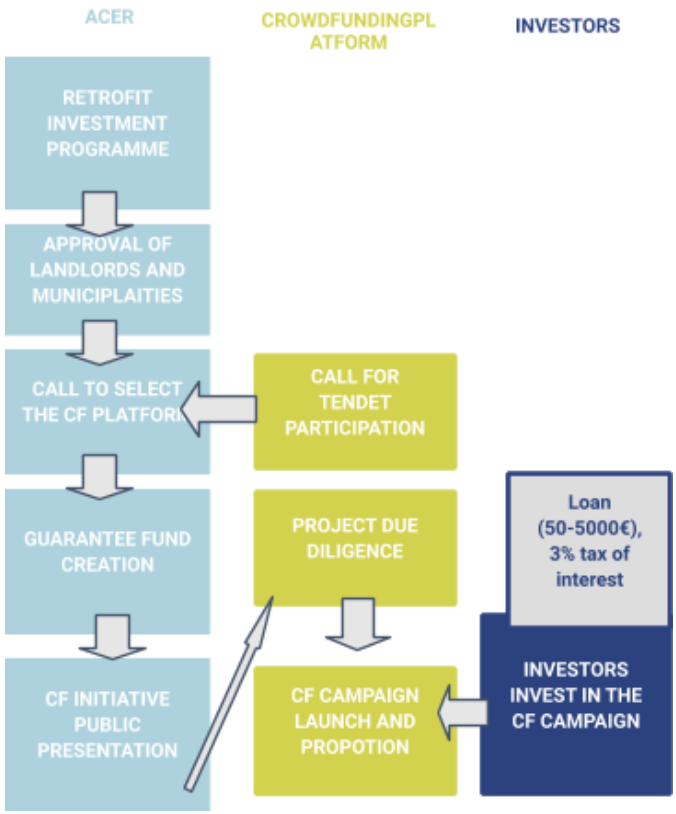

Figure 4: CrowdHO lending process

5.4 CrowdHO equity scenario for social housing retrofit

Equity is the crowdfunding instrument through which private companies offer part of their shares to a group of people in exchange for a certain amount of capital „and it is therefore recognisable as part of the capital markets. Due to the implications of investing into a commercial enterprise, it is often subject to securities and financial regulation. Just as lending crowdfunding, it is included in the crowd-investing instruments and is also known as crowd equity.

Equity crowdfunding is a mechanism that enables broad groups of investors to fund startup companies and small businesses in return for equity, therefore receiving ownership in the form of a percentage of the overall shares of that business. It follows that, if the business succeeds, the value of their share increases; , but they are also exposed to the opposite trend, should the value decrease.

The purpose of the use of equity as a second option in the CrowdHO scenarios is to increase the competitiveness of small / medium ESCOs and companies in the realization of energy retrofit projects.

The instrument can be set in motion through the creation of a Special Purpose Vehicle - SPV, a company created by the ESCO and dedicated to the purpose of raising funds for a specific venture - as a separate branch of the company seeking to raise capital. the ESCO must retain at least 50% of the SPV company and can decide, once the planning is set, to liquidate the partners, buy back the shares or go on with other projects. This instrument is quite interesting for the retrofit because investors are not searching for a high fee and therefore the ESCO can pay back the eventual bank loan easily. Another positive quality is that the ESCO doesn't open its own shares to the crowd of investors, and it therefore retains its usual structure of ownership and rights. .
Investors can be attracted to the instrument thanks to the chance to earn a high yield (profit) at the end of the project, as well as the chance to benefit from financial incentives as soon as they perform the investment, such as tax reliefs up to 30% in case the SPV can be identified as innovative start up.

With this instrument, the ESCO can deal with project financing proposals - in the framework of PPP - for the retrofitting of one or more publicly-owned buildings, without having to access bank credit or other existing financing instruments which are sometimes rather expensive, gaining therefore in flexibility and in shareholders management. Financial bodies themselves prefer to finance a lower part of the investment, for a short period.

Due to the risk of failure in the creation of the SPV, the company / ESCO can present to the public beneficiary two different options: one with the use of mere bank loans and another with the use of the SPV generated with the objective of running an equity crowdfunding campaign. The presentation of such double option for ESCOs is an important element to demonstrate that the company could be able to carry on the investment even without external investors. In the first option, in case of success of the equity crowdfunding campaign, the proposing ESCO will have a minor cost thanks to the minor loan that it will ask to the bank, and it will therefore be able to increase the original offer by either providing additional services on the proposed set of buildings, or add new buildings to the renovation project, including the ones originally rejected for a low and unattractive economic return.
The setting up of the SPV, on the other hand, being costly for all the participants, comes only after the decision of the public body to accept the project financing proposal and move on with the public tender.
The crowdfunding platform – identified by the ESCO – will be in charge of the project's due diligence, as well as the promotion of the campaign and the accountability process to investors, also in terms of impact.

Equity scenario key-data	
Objective	to increase the capacity of small enterprises to participate in ACER calls/tenders for the requalification of social / public residential building.
Campaign promoter	ESCOs, companies
Size of campaign	100.000 – 400.000 Euro Business volume has to be approximately 1 Mio EUR per year, or approximately 10 Mio EUR in 10 years, to reach an investment level large enough to justify the effort and expenses for the setting up of an SPV
Investors	Individual investors, sometimes potential future service providers also participating in the redevelopment. 5% of the campaign must come from a professional investor (financial institution, incubator, investor with more than € 500,000 in capital, public body). The fee can also be covered at the end of the campaign, when it

	reaches 95%
Individual investment size	€ 1,000 (individual investment) - € 5,000 (suppliers)
Steps	1.ESCO makes a technical and economic proposal to the public beneficiary - for the development of an energy retrofitting programme. The proposal foresees two different scenarios: one with equity CF and one with bank financing 2.ACER – as the public beneficiary – evaluates the proposal. After a formal approval, ACER publishes a public call with the technical and financial conditions as approved, in order to look for any further potential improvement by the proposer or external companies. 3.ESCO promotes an equity crowdfunding campaign to an equity crowdfunding platform in order to set up an SPV. 4.The crowdfunding platform is responsible for promoting the initiative and managing the relations between investors and ESCO. 5.Setting up of SPV and definition of its financial strategy in order to participate in the tender with a better and more remunerative proposal. .

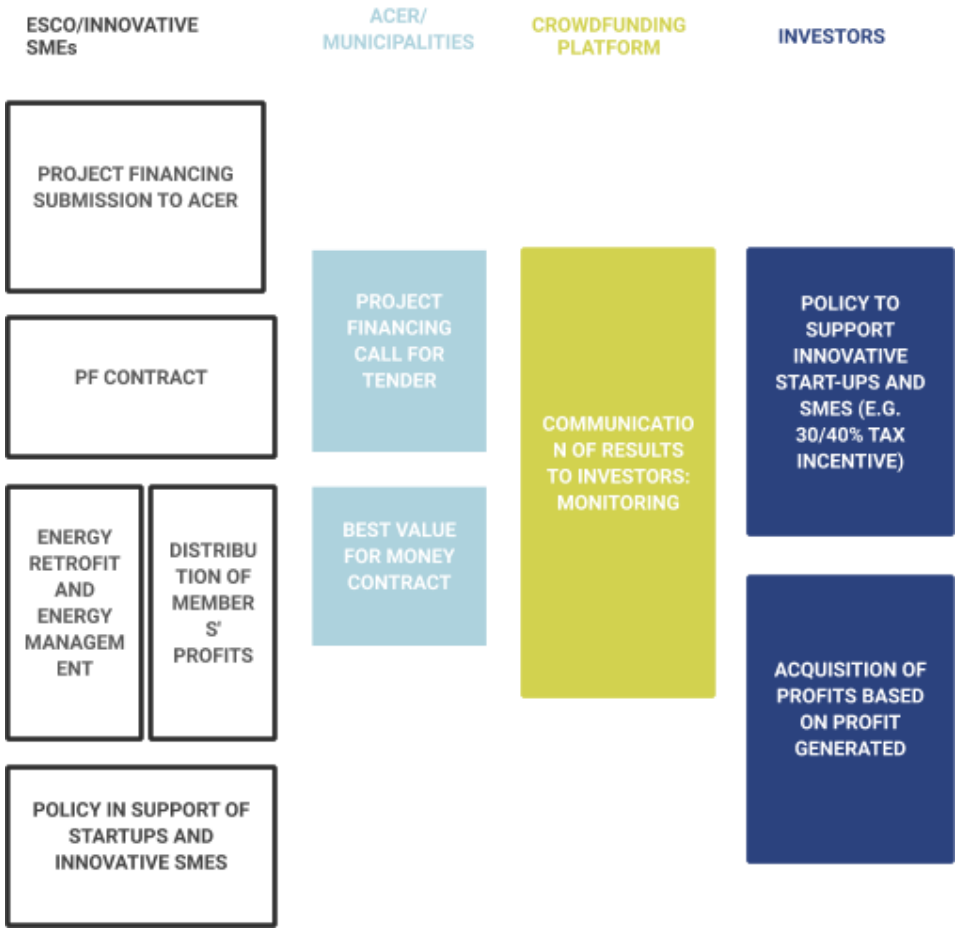

Figure 5: CrowdHO equity business model

Positive aspects

- Real opportunity for overcoming market barriers: small ESCOs have no structure and share capital to be able to present a proposal as promoter, so SPV may be interesting to be seen and known (commercial advantage). The company can compete with larger and better known players
- Equity investments do not have a cap on the possible value increase, so it is not unusual to see above 20% advertised returns with a possibility for more.
- Convenience & diversification: Through crowd equity an investor can invest little quotes in the SPV, starting from 1000€. That means that the investor can diversify its investment and is not limited to few projects and all their maintenance.
- In Italy the instrument can be used in addition to other (e.g. National guarantee fund) and can be recipient of tax reliefs (when the SPV can be identified as an innovative start up)
- Equity crowdfunding allows the diversification of the investment and the management of the intervention without losing the purchasing power. An ESCo that makes SPV via equity CF has the advantage of not having to make the investment immediately as there is no interest but only a percentage of the profit.
- Investment volume: ESCO have to start from small campaigns (100-200.000 Euro) and then, on the basis of success, scale up to larger projects
- Since 2019, Equity platforms can also be used to allocate debt instruments (minibonds, but limit on investors who can only be professional). At the moment it is a limited and not very used tool in Italy, but it may become interesting in the future. The European regulation is debating whether debt instruments can also be brought to the retail side. Minibond low risk and therefore low rates would be accepted by investors.

Negative aspects

- Equity is a risk investment, investors will be the last in line for payouts. If the SPV does not rise in value or create profits, investors will not get any profit on the investment. There is also the risk to lose some money.
- Equity investments for energy efficiency may have a return on investment of 7-12 years – for some investors can be considered too long.
- Risk of insolvency of private owners. ESCO would have to sign an agreement that rewards users' virtuous behavior and facilitates the repayment by investors of their energy retrofitting interventions: definition of incentive methods if virtuous behavior is monitored. Advanced monitoring tools could be associated with this.

Key points for an effective measure

- Take into account, in the definition of the business plan, the set up costs for the SPV to avoid the chance of underestimate the costs and achieve a result lower than expected.
- The ESCO / company asking for investors have to be endowed with strong legal Set-up and economic plafond, in order to be attractive for the investor.
- The entrepreneurial risk is on the company and its financers.

The process

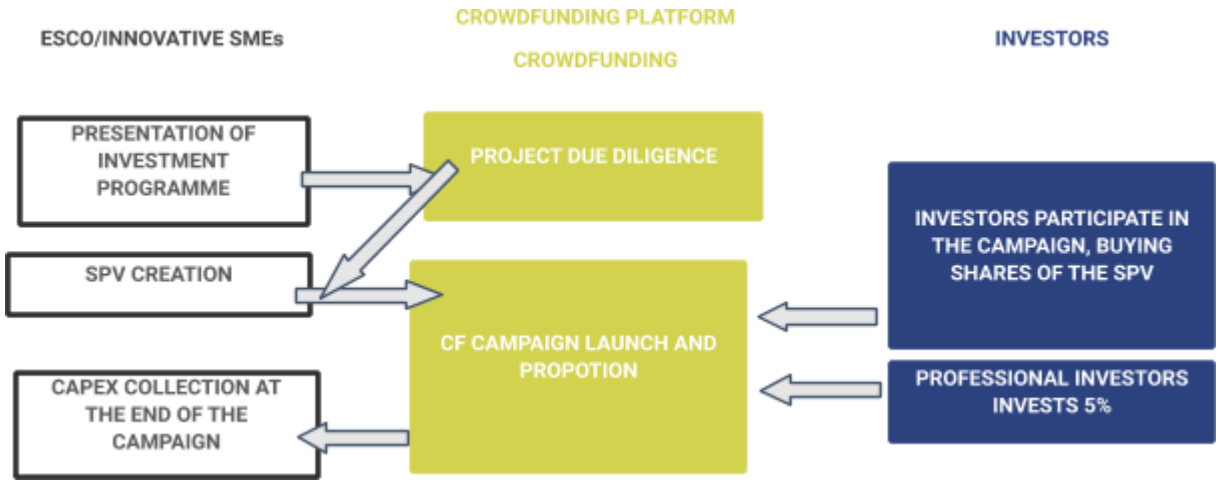

Figure 6: CrowdHO equity process

6 Potential uptake of the CrowdHO models

Following a demand-led approach, the first aim is to understand the concrete opportunities for testing the innovative financing models to achieve higher retrofit rates: for this reason it's important to map the state of the building stock managed by the ACERs - regional social housing managers and verify their availability in proceeding with a pilot project. In this sense, a letter of commitment from ACER Reggio Emilia has been subscribed.

On the other side, the development of additional actions would facilitate the uptake of the crowdfunding in the energy efficiency sector, for instance by aggregating interested stakeholders with investment capacity (funds, cooperatives, large property owners) and investigate with the Emilia-Romagna Region the opportunity to set up a guarantee instrument with the purpose of mitigating the risk of investors participating in lending crowdfunding campaigns.

During the third CrowdHO board workshop held in 2019, a **questionnaire** was shared with the participants with the aim to collect feedback regarding advantages and obstacles for the application of the lending crowdfunding and equity crowdfunding scenarios.
According to the questionnaire average results (score from 5 – high to 1-low), the implementation of a pilot project would achieve high social impacts improving the living conditions for low-income families (both tenants and property owners), increasing their financial solidity and facilitating the green investments by making it quicker and more accessible.

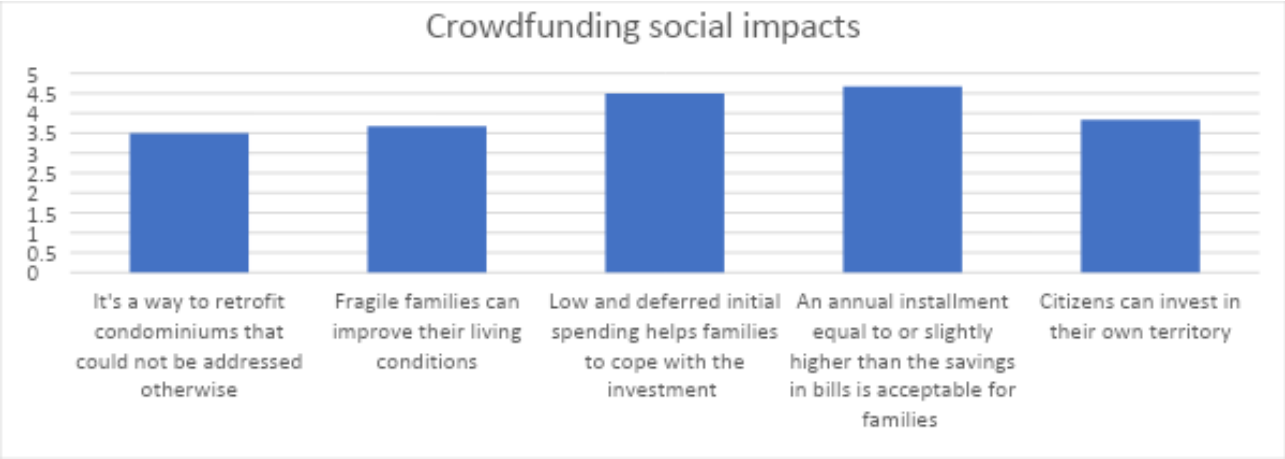

Figure 7: CrowdHO pilot project social impacts (average results, score from 5 – high to 1-low)

Even the benefit for companies and investors are optimistic, especially in case of start-up engagement and with SPV creation to take advantages and competitiveness to the SMEs. The presence of national incentives for investors that choose to invest in innovative SMEs through equity crowdfunding is a strong advantage that would increase the interest in crowdfunding both by SMEs and professionals or retail investors.

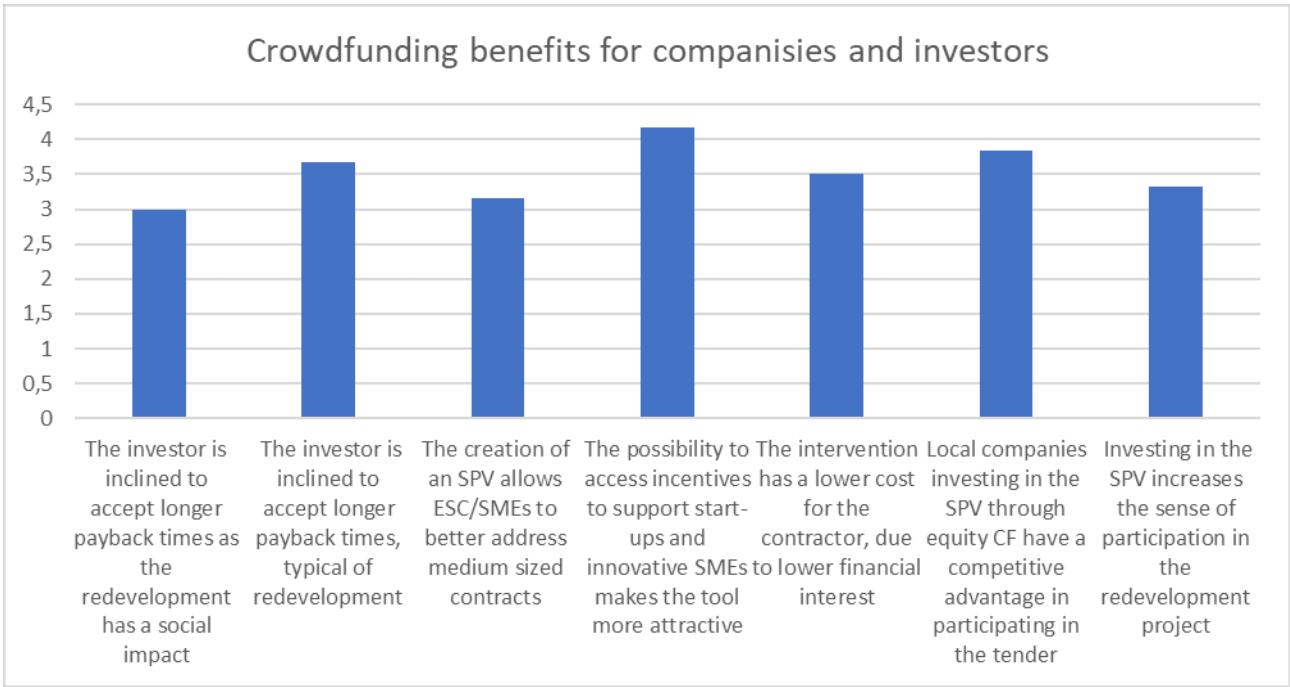

Figure 7: CrowdHO pilot project benefits for companies and investors (average results, score from 5 – high to 1-low)

The main barriers still perceived by the stakeholders involved in the CrowdHO board relies on the dimensions of investment and on investors awareness. As for the first point, the project promoter has to define the "right investment size" depending on the type of crowdfunding model chosen: if the equity model is preferred, then it would be better to aggregate more interventions so to dilute the SPV costs, while with lending, financing small interventions would help to reduce the risk of investment. On the other side, investors awareness should be raised and well communicated the additional benefits of adopting these blended financing models, beyond remuneration (examples of messages and strategies for approaching investors and key stakeholders are described in the DEL06 - Strategic roadmap for crowdfunding adoption/Communication strategy).

Giving the projects results, the steps necessary to deploy a pilot project implementation would require several steps.
First of all at least three entities should be engaged: the asset manager (ACER), an ESCO depending on the model, and an equity or lending or mixed crowdfunding platform. Potential institutional investors must be identified as well in case of equity crowdfunding, in order to be able to cover the 5% of the campaign. Key condition for implementing the lending scenario is the definition of the guarantee mechanism to protect investors from default.

Secondly, as anticipated at the beginning of the chapter, a bankable investment programme must be identified (starting from the mapping of retrofit needs within ACER building stock) and set up the framework for the agreement between building owners (Municipalities and landlords) for the investment implementation, with the aim to acquire their approval. Third, the business plan integrating crowdfunding mechanism must be defined and eventually improved by having recourse to guarantee funds set up at regional or national level. Finally, the EPC or project financing call for proposal can be developed.

7 Replicability and scalability of the project

Project scalability is necessary in order to create a sustainable case study.
CrowdHO project has been implemented with the aim of solving the mixed-owned social housing problem related to the involvement of private owners in the overall retrofit investment. The analysis undertaken with the group of stakeholders, engaged in 2019, has demonstrated that the adoption of crowdfunding would broadly support the achievement of energy efficiency target goals acting on several levers:

- behavioural, by contributing to the broadening of the potential audience of green investors investing directly with crowdfunding or being able to co-invest through other mechanisms
- technological, by indirectly boosting the innovation of the enterprises involved in the deep renovation
- policy, by requiring a shift in purpose of the policies targeted to housing poverty reduction, toward energy poverty reduction, and energy efficiency incentive, toward energy efficiency risk mitigation.

The adoption of the CrowdHO models could be then explored further with reference to other real estate contexts, where similar business cases can apply, for instance housing cooperatives, privately owned and agreed rented tenancy buildings or maxi-condominiums, to raise capital for the building retrofit investments. Building retrofit crowdfunding can be interesting for potential investors according with the following aspects:

- The financing of large building retrofit investment programme can provide to the investors the possibility of diversifying the investment;
- Allocating capital to several projects the investors can reduce the investment risks;
- Social and environmental impacts provide to the investment multiple benefits.

In order to scale the uptake of the crowdfunding models in building retrofit, several actions might be conducted at the regional and national level to foster learning and knowledge about crowdfunding use among specific target group (ACER, public administration, property owners and managers, at first), increase awareness of the urgency to mobilize investments with high social and environmental impact, decrease the administrative and financial burdens still preventing from mass-scale building retrofit.
Among these, the following actions could be further explored:

- at the local/regional level, the creation of a public-private fund at the regional level to cofinance housing retrofit investment partially covered with crowdfunding
- at the national level, the conversion or extension of the Fund for Innocent Insolvent Tenants, now active at the national level to provide for income support to the weaker social groups by facilitating the payment of rents: a proposal launched during the workshops was to extend the eligibility frame (from tenants to low-income property owners) and convert part of its budget with guarantee purpose.