

Webinar March 21, 2019

Doing it again- The CITYfiED Replication plan



Agenda

Welcome and Introduction

Jeanette Green, IVL

Results from the Demo sites

Ali Vasallo, CARTIF

Doing it again?

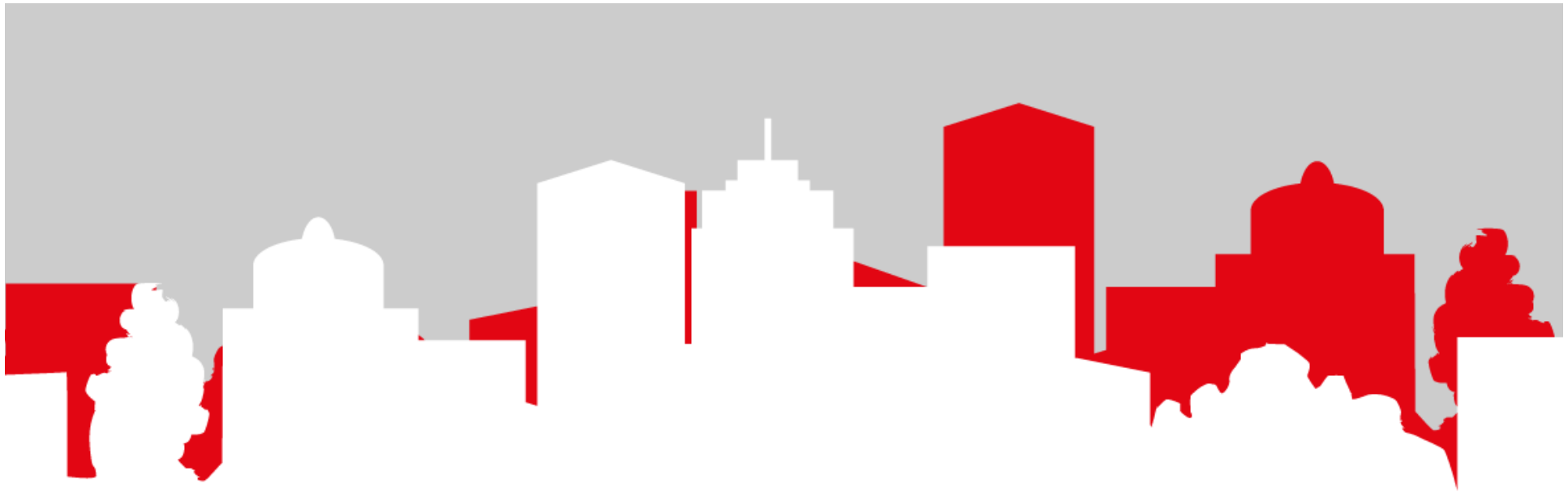
Jeanette Green, IVL & Dilay Kesten Erhardt, SEZ

Business models & Social stories

Álvaro Espeso Sanz, Veolia, & Youris

Discussion and Closing Remarks





**A smarter way to delivering
energy efficient urban
renovations at district level**

<http://www.cityfied.eu/>

ENERGY.2013.8.8.1

Collaborative Project – This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement No 609129
CITYfIED Final Webinar, 21st of March 2019



Laguna de Duero (Spain), District of Torrelago

*Province of Valladolid
22,696 inhabitants
29.23 km²*



The demonstrators



LAGUNA DE DUERO | Torrelago District

The Torrelago demo site consists of 31 private buildings.

The buildings all have 12 floors with 4 dwellings on each. They were built between 1977 and 1981. Retrofitting took place between May 2014 and March 2018, allowing over 4,000 residents to benefit from the project.

Energy Efficiency Measures

- Façade renovation
- New district heating (Biomass)
- New pumping system
- Combined heat and power facility
- Smart grid
- Monitoring platform



31 buildings



1,488 dwellings



Conditioned area
143,025 m²



35.6 %
energy savings



59.4 % renewable
energy sources

Soma (Turkey), District of Soma-Manisa

*Province of Manisa
74,158 inhabitants
839 km²*



The demonstrators



SOMA | Manisa Province

The Soma demo district comprises 9,970 m² of gross area with 7,037 m² of conditioned area. Seventeen buildings with 200 dwellings have been energy-efficient retrofitted and some 150 inhabitants have directly benefited directly. The buildings were built in 1982 and the retrofitting took place between 2014 and 2018.

Energy Efficiency Measures

- Façade renovation
- Solar thermal
- Monitoring platform



17 buildings



200 dwellings



Conditioned area
7,037 m²



40.6 %
energy savings



7.7 % renewable
energy sources

Lund (Sweden), District of Linero

*South of Sweden
120,000 inhabitants*



The demonstrators



LUND | Linero District

Linero is a housing district where two blocks – Eddan and Havamal – consist of 28 three-level council dwellings, built in the early 1970s. The demo site involves approximately 2,000 tenants. Buildings after the retrofitting have an energy performance that resembles new buildings.

Energy Efficiency Measures

- Façade renovation
- District heating (100% renewable)
- Photovoltaic integration
- Smart district heating
- Smart grid
- Monitoring platform



16 buildings



379 dwellings



Conditioned area
40,400 m²



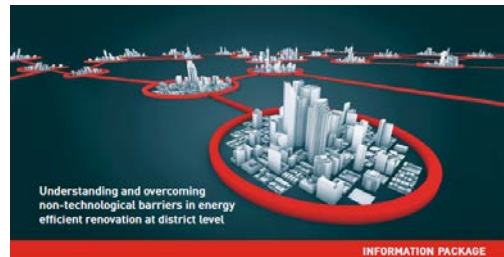
30.8%
energy savings



75.6% renewable
energy sources

The CiTyFiED info packs

CITY SMART SPACE



NON-TECHNOLOGICAL BARRIERS



SOCIAL

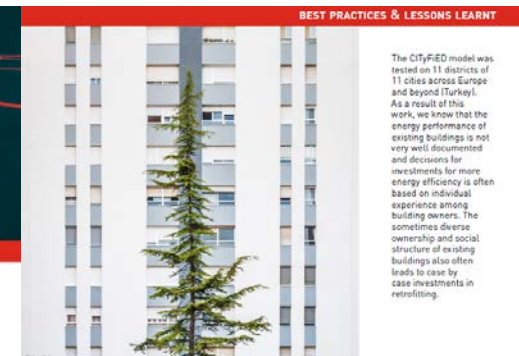
Social barriers were found to be common to all cities with a general lack of awareness, knowledge and interest among residents about energy efficiency, as well as a clear lack of acceptance for building renovation work and temporary annoyance. A good communication or even the involvement of tenants and/or owners in the decision and implementation process from the very beginning is the key. By means of info campaigns both on qualitative (e.g. comfort) and economic (e.g. energy saving) benefits, the use of trusted ambassadors among the residents, "show houses" and study tours to retrofitted apartments.

01 Non-technological barriers

02 CiTyFiED model for selection of energy retrofitting strategies at district level



CITYFIED MODEL FOR SELECTION OF ENERGY RETROFITTING STRATEGIES AT DISTRICT LEVEL



The CiTyFiED model was tested on 11 districts of 11 cities across Europe and beyond (Turkey). As a result of this work, we know that the energy performance of existing buildings is not very well documented and decisions for investments for more energy efficiency is often based on individual experience among building owners. The sometimes diverse ownership and social structure of existing buildings also often leads to case by case investments in retrofitting.



CITYFIED METHODOLOGY FOR SUSTAINABLE URBAN RENOVATION AT DISTRICT LEVEL

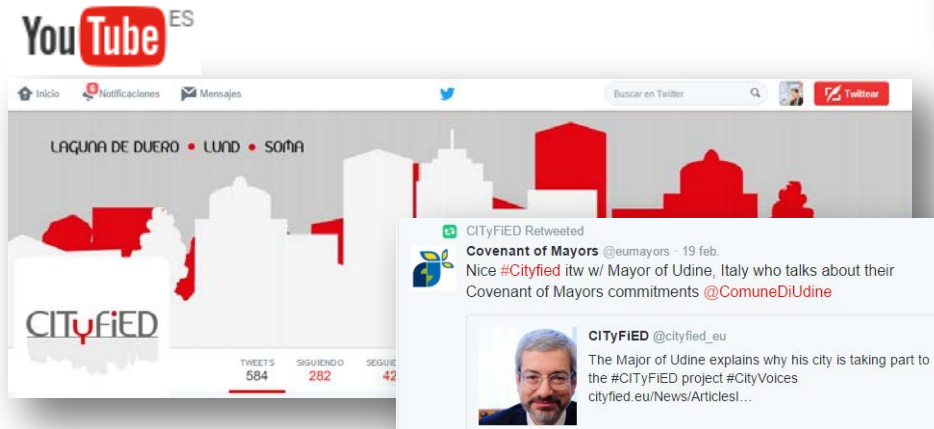


The methodology is deployed in 7 phases, ensures an effective dialogue among all stakeholders and considers different ways to strengthen confidence in decision-making processes. Our approach is tested through the active participation of the demonstration teams, with the demonstration cases as a reference; and the CiTyFiED network of cities, which are the City Cluster and the Community of Interest.



03 CiTyFiED methodology for sustainable urban renovation at district level

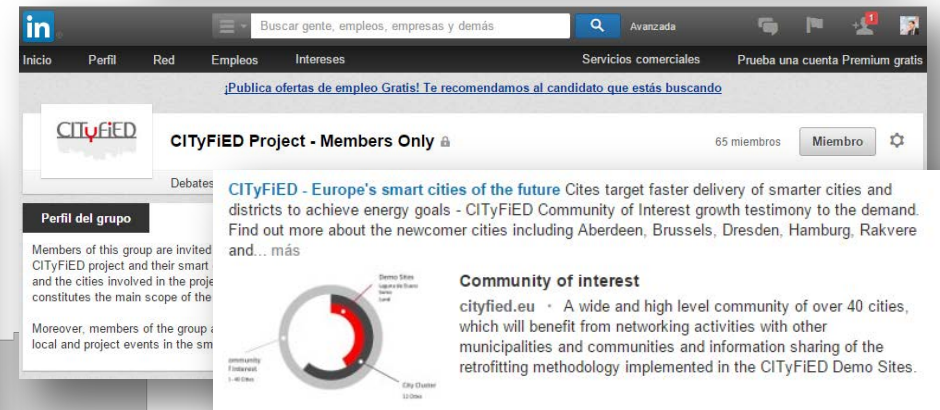
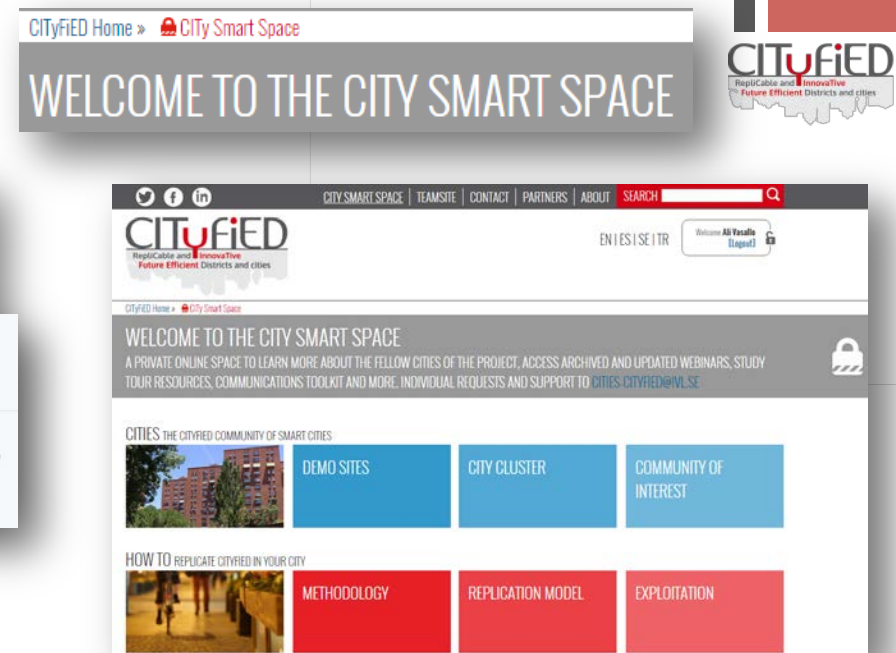
CITYFiED social media



twitter



facebook



LinkedIn



“thank you for
ATTENTION
your :)”

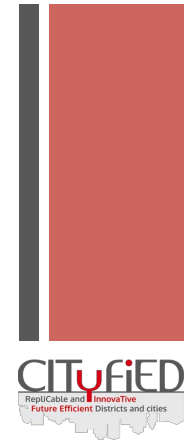
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7 steps to CiTyFiED replication



Involving key stakeholders

Understanding the city sustainability goals

Identification of city districts

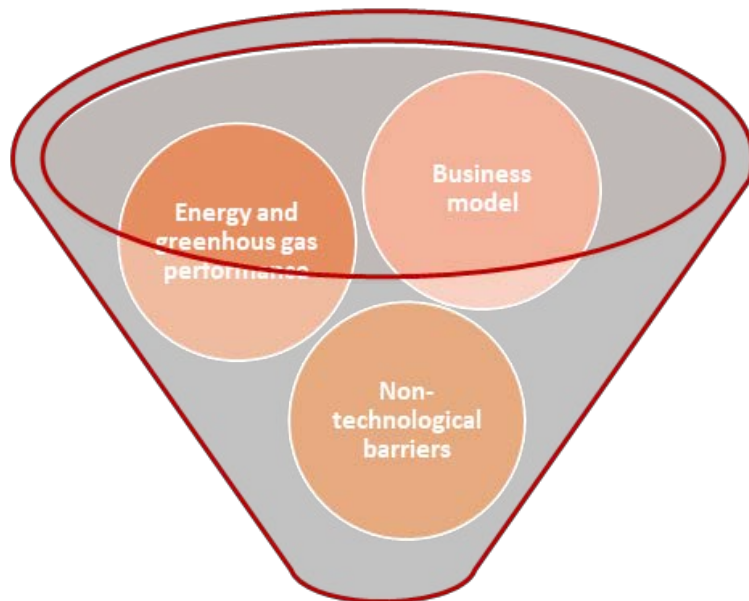


- Build your team
- Aim for lower Climate impact and increased share of renewables
- Prioritize residential districts with similar buildings with high climate impact and retrofitting needs.

Diagnosis of the district

Exploring energy retrofitting scenarios

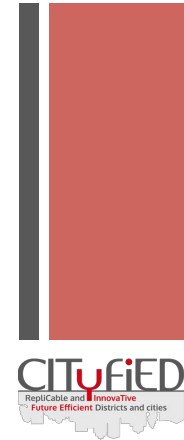
Prioritization and impact assessment



Diagnosis of city district

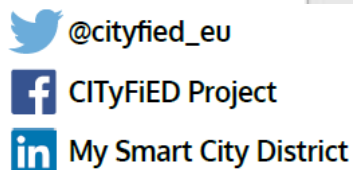
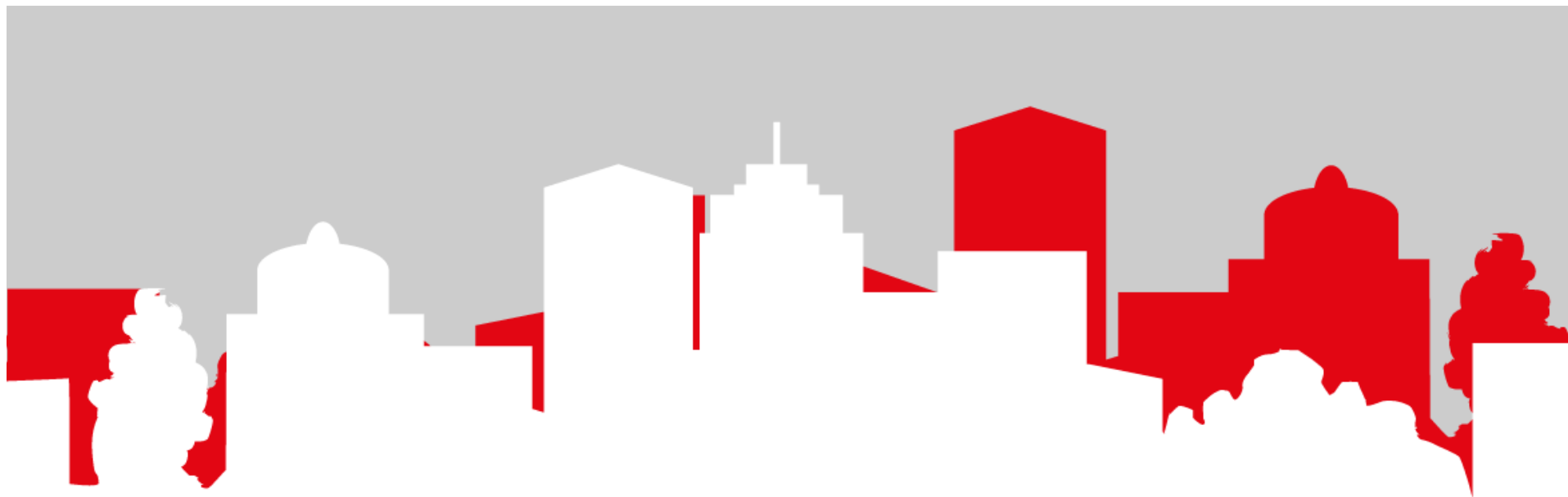
- Measure or simulate energy demand and calculate climate impact
- Learn about non-technological barriers and solutions
- Explore business models
- Build alternative retrofitting scenarios
- Choose your strategy and assess the impact

Validation of the impact of the energy retrofitting scenario



- Get new monitoring data after retrofitting
- Validate your estimated impact
- Give feedback to stakeholders
- Revise future strategies.
- Do it again....


Thank you for your attention!



Final Webinar WP6 – Solution Packs

Steinbeis 2i
Dr. Dilay KESTEN ERHART



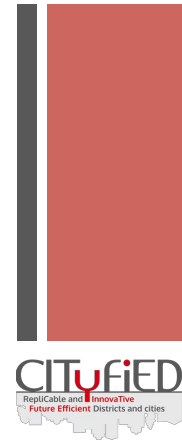


Solution packages towards market implementation

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The CiTyFiED Solution Packages:

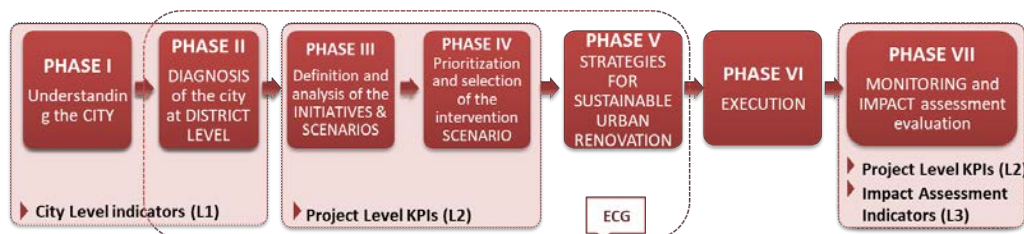
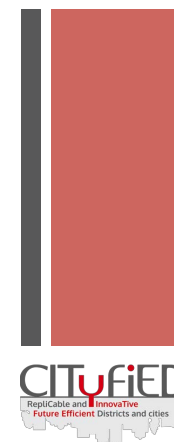
- **Solution package 1:** The CiTyFiED Methodology for sustainable urban renovation at district level
- **Solution package 2:** Monitoring platforms (Visualisation & Home Energy Monitoring Systems (HEMS))
- **Solution package 3:** Low Temperature District Heating (LTDH) systems for residential buildings



CITyFiED Solution Pack 1:

The CITyFiED Methodology for sustainable urban renovation at district level

A procedure composed of several phases and a decision-making process that aims to understand the city (objectives and needs) in order to deliver a set of customized **Strategies for the Sustainable Urban Renovation** at district level with the energy efficiency as the main pillar and local authorities as clients.



Services

- Methodology for city renovation
- Tools and techniques for evaluating the retrofitting impact of demonstration results
- Smart Cities Methodologies and Standardisation for Turkish Cities
- Business Model for Retrofitting (decision making tool for companies, ESCos)
- **Companies involved:**
- **Acciona Construcción** (Spain), **Demir Enerji** (Turkey), **Technology centre Cartif** (Spain), **Veolia** (Spain)

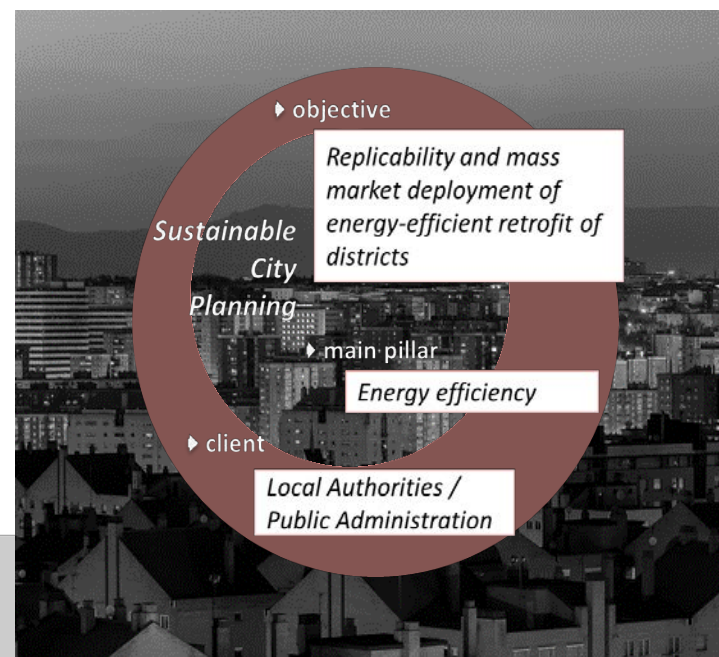
Type of partnership considered:

Technology offers:

- Commercial agreement with technical assistance
- Technical co-operation agreement

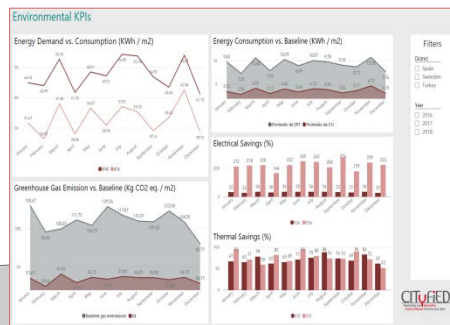
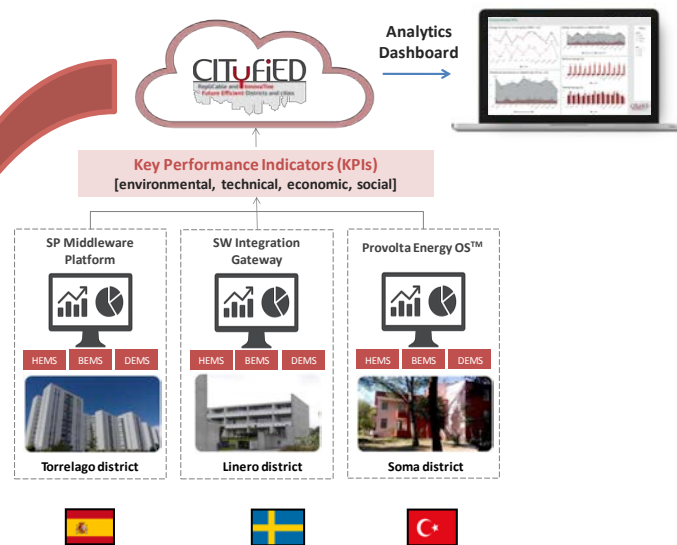
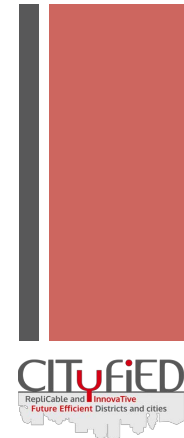
Business offers

- Outsourcing and services agreement for the CITyFiED Methodology



CITyFiED Solution Pack 2:

Monitoring platforms (Visualisation & Home Energy Monitoring Systems (HEMS))



The CITyFiED Monitoring platforms, Visualization & HEMS, are composed of several digital solutions that aim to monitor, **analyse** and **visualize energy data (demand & supply)** within a **building** and, as an extension, within a **district**. The Platform supports the users with:

- Info dashboards for decision making
- monitoring of energy consumption, cost savings and comparative analysis
- energy consumption knowledge
- environmental profile
- educate the tenants/users of the buildings.

Product and Services

- The Monitoring Platform(s): Spanish, Turkish
- CITyFiED Overall Monitoring Platform (platform)
- The Monitoring Data: Turkish
- Visualisation for Households: Spanish, Turkish
- Visualisation for Districts: Turkish, Swedish

Companies involved:

- Mondragon Corporation (Spain),

Reengen (Turkey), Krafttringen Energi AB (Sweden)

Type of partnership considered:

Technology offers:

- Commercial agreement with technical assistance
- Technical co-operation agreement

Business offers

- Financial and services agreement for the CITyFiED Monitoring platforms, Vis. & HEMS

CITyFiED Solution Pack 3:

Low Temperature District Heating (LTDH) systems for residential buildings

The CITyFiED “LTDH systems for residential buildings” aims to contribute more efficient use of energy resources as well as better integration of renewable energy, and surplus heat into the heating/cooling sector. The SP also offers prospects for both the demand and supply side.

For demand side:

- **Radiant** heating (and cooling) **panel systems** compromise distinctive advantages in terms of thermal comfort and energy consumption, allowing work with low temperature district heating systems.

For Supply side:

- **New DH control strategies**, in order to maximise energy efficiency and increase energy performance by using the energy source that fits best the current situation.

Products and Services

- Low-temperature radiant heating and high-temperature radiant cooling panels for buildings
- Pre-insulated reinforced thermoplastic composite pipes for LTDH systems
- New District Heating strategies to improve energy performance

Companies involved:

- **MIR ARGE** (Turkey), **Veolia** (Spain)

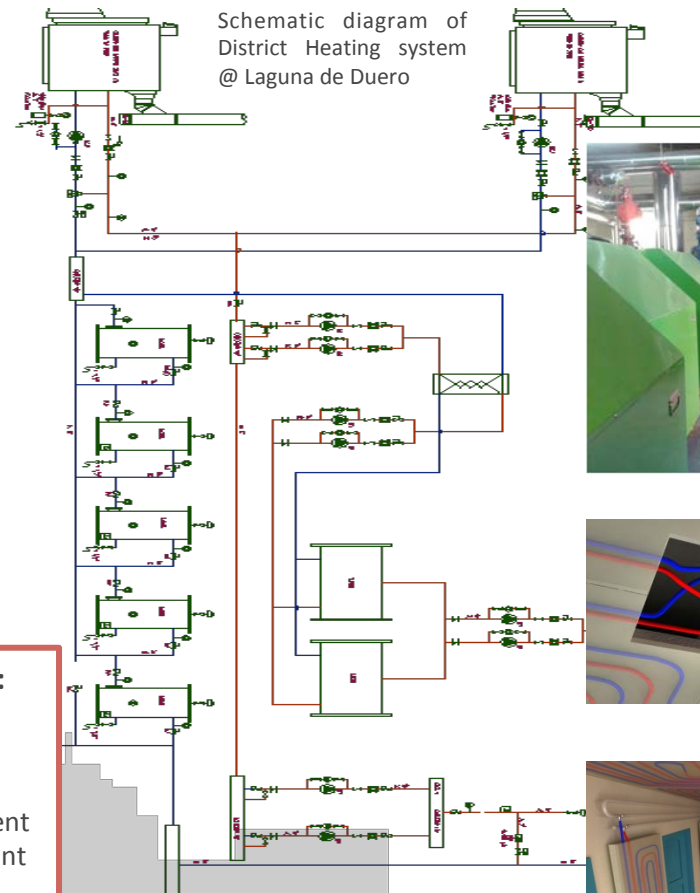
Type of partnership considered:

Technology offers:

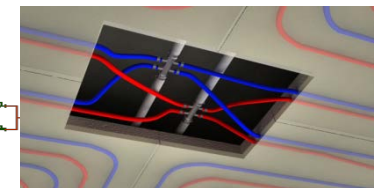
- Commercial agreement with technical assistance
- Technical co-operation agreement
- Research co-operation agreement

Business offers

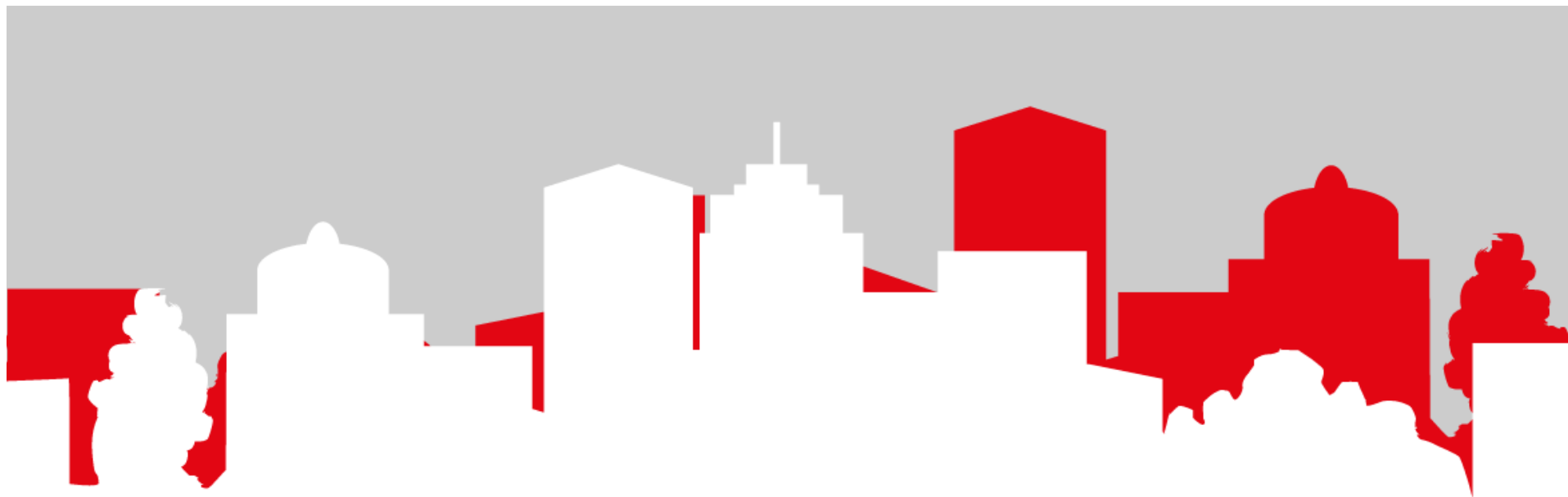
- Financial and services agreement for the radiant panel systems



CITyFiED
Replicable and Innovative
Future Efficient Districts and Cities



Thank you for your attention!



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CITYfiED Project



My Smart City District

FINAL WEBINAR Business models

21st March 2019



Agenda

- New business model for energy efficiency renovations at district level
- Guidelines for business models in large retrofitting projects



Business Models
Álvaro Espeso (VEOLIA)
Inés Fernández (VEOLIA)



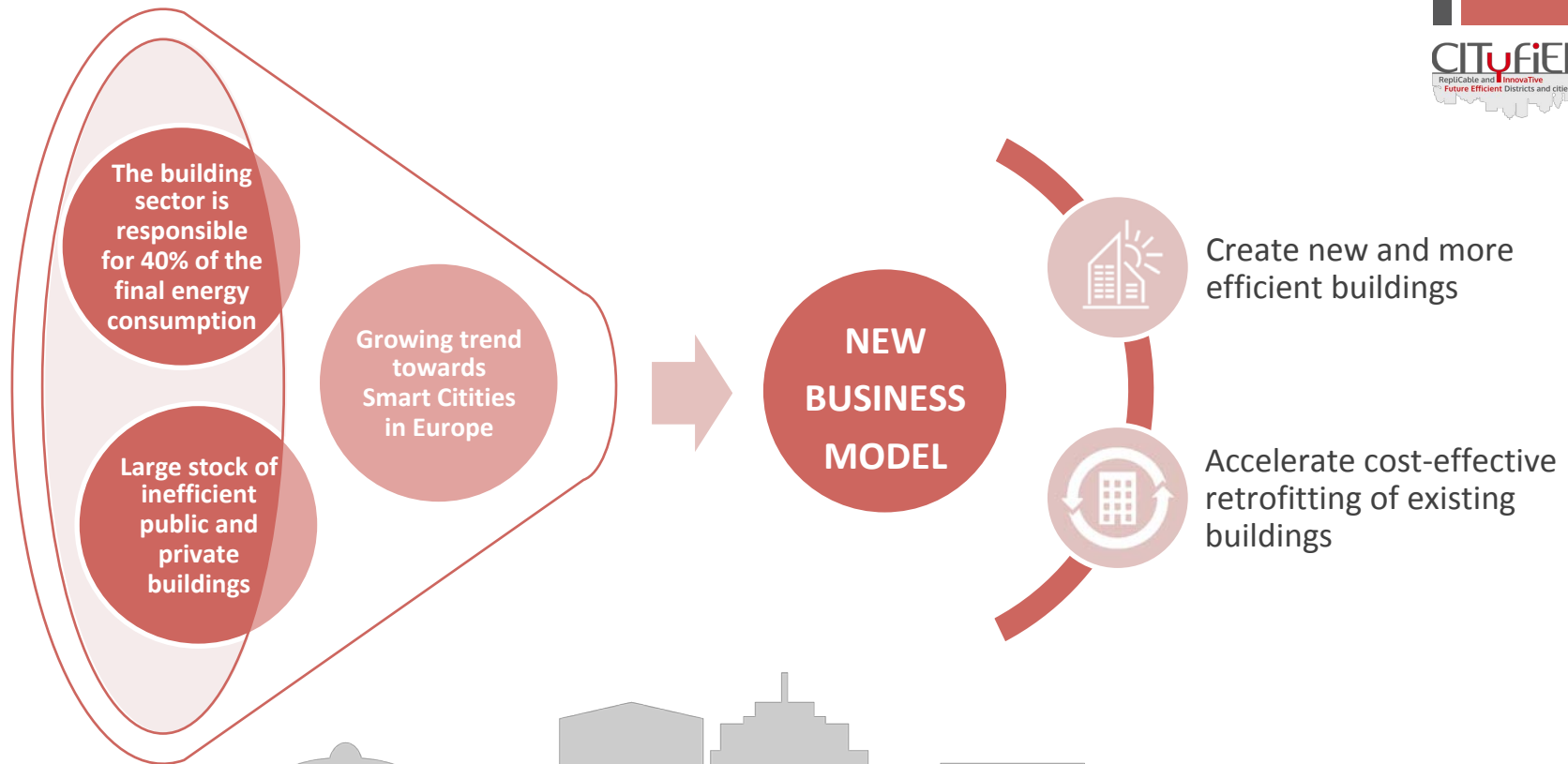
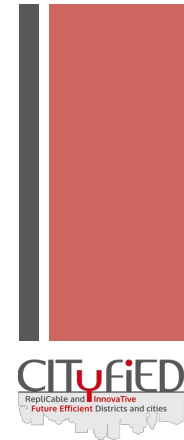


New business model for energy efficiency renovations at district level

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Introduction

Why a new business model ?



Introduction

3 fundamental objectives:



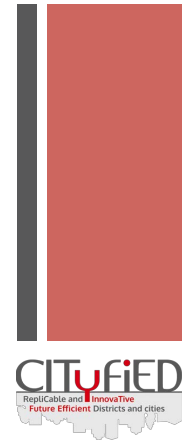
Optimization of the energy
Reduction of energy demand



Improvement of the comfort of citizens

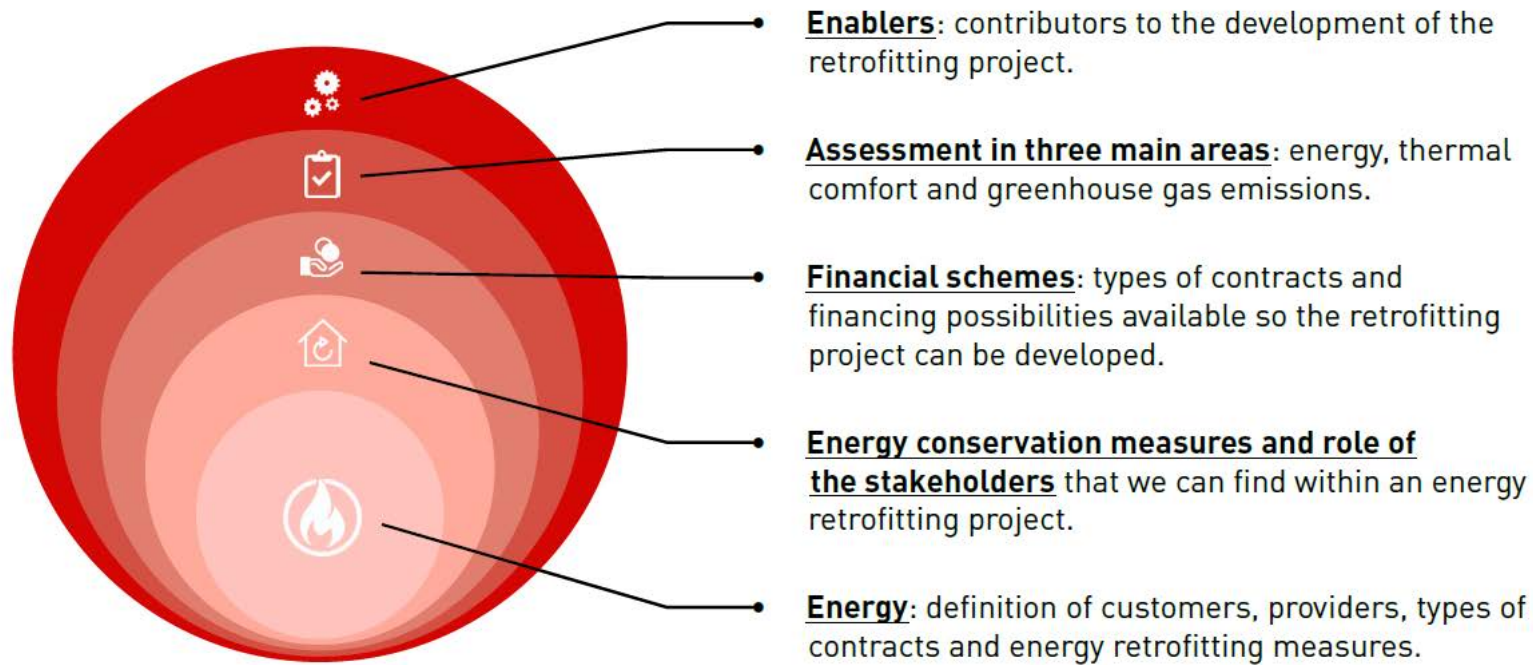
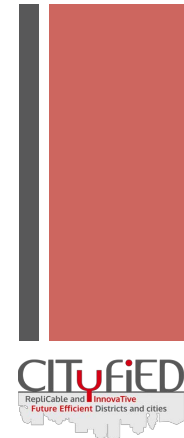


Reduction of greenhouse gases emissions.



Business layers

The new business model is an open model, consisting of five integrated sections that interact with each other.



Business layers



ENERGY

ENERGY SUPPLY

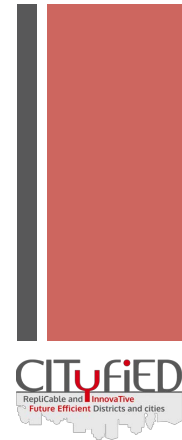
What is required?

CUSTOMER

Who requires
it?

PROVIDER

Who can
answer that
requirement?



Business layers



ENERGY MEASURES

Energy conservation

Active measures

- RES integration
- Improvement of facilities

Passive measures

- Envelope retrofitting
- Bioclimatic measures

Role of the stakeholders

Who am I?

→ What services can I offer?

→ To whom is the service offered to?



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Future Efficient Districts and cities



FINANCIAL SCHEMES

Financial schemes

Direct

Loans

Own funds

Grants

Indirect

Energy savings

Energy taxes/prices

Taxes depreciation



Business layers



ASSESSMENT

3 KEY ASPECTS

ENERGY

GHGE

COMFORT

- What to evaluate?
- Who evaluates?
- How to evaluate?



ENABLERS

- Solid legal and regulatory framework
- Mature and technically advanced solutions
- Established financial schemes and infrastructure
- Decision makers



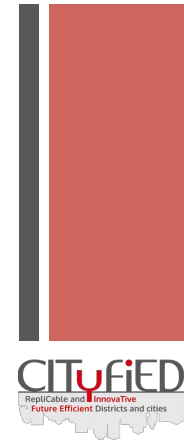


Guidelines for business models in large retrofitting projects

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Guidelines for business models

There are three possible entries for the stakeholders to use the guideline in order to help them join the business model



**SERVICE PROVIDED
OR DEMANDED**

*Who can provide me with the service I
need and who demands the service I offer?*

**ROLE OF THE
STAKEHOLDERS**

*Who am I and what can I
do within the project?*

**TO WHOM IS THE
SERVICE OFFERED**

*Who are my potential
customers?*

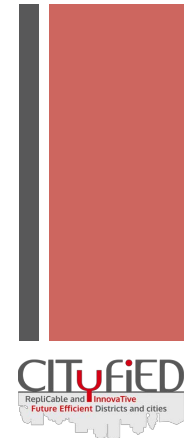
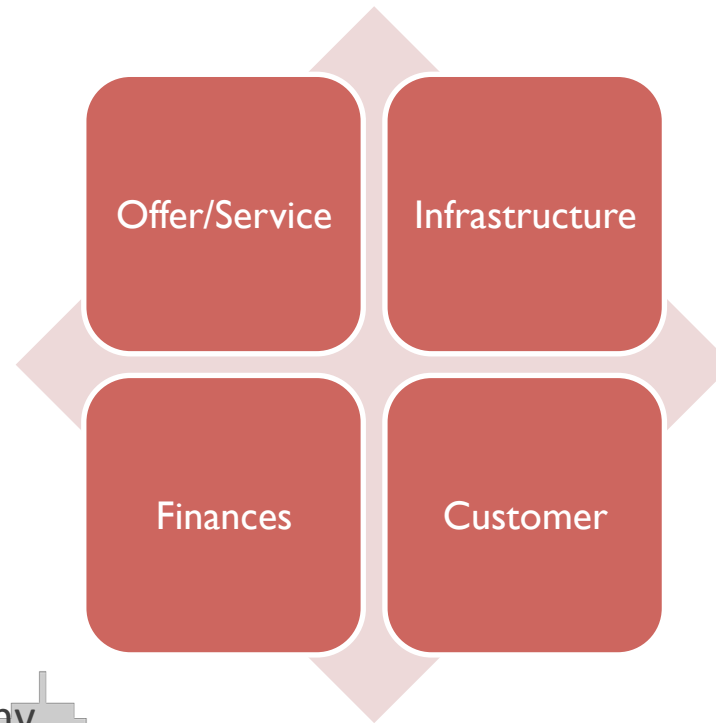


Guidelines for business models

1. ROLE OF THE STAKEHOLDERS

Identification of stakeholders

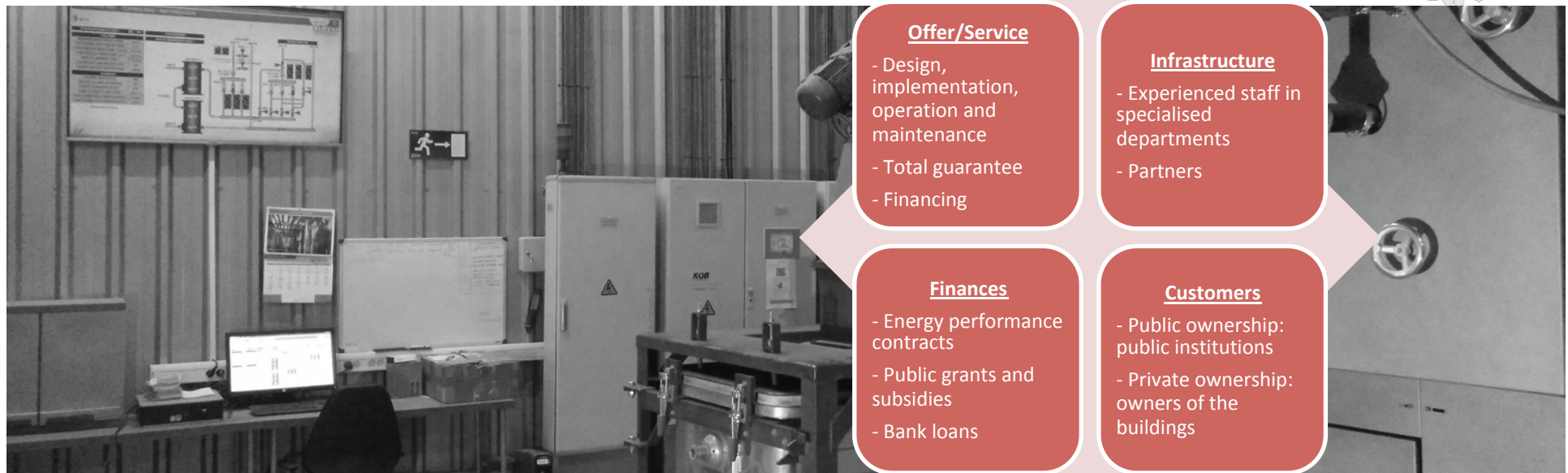
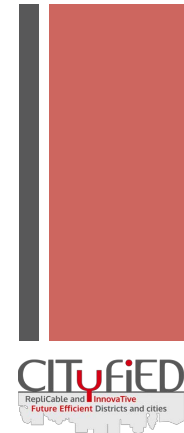
- End users
- Housing companies
- Municipalities
- Energy service company
- Energy supply company
- Construction company
- Architectural firm
- Energy consulting
- Engineering firm
- Energy management company
- Private financial entities
- Public financial entities
- Measurement and verification company
- Monitoring company
- Product developers



Guidelines for business models

1. ROLE OF THE STAKEHOLDERS

EXAMPLE: ENERGY SERVICE COMPANY (ESCO)

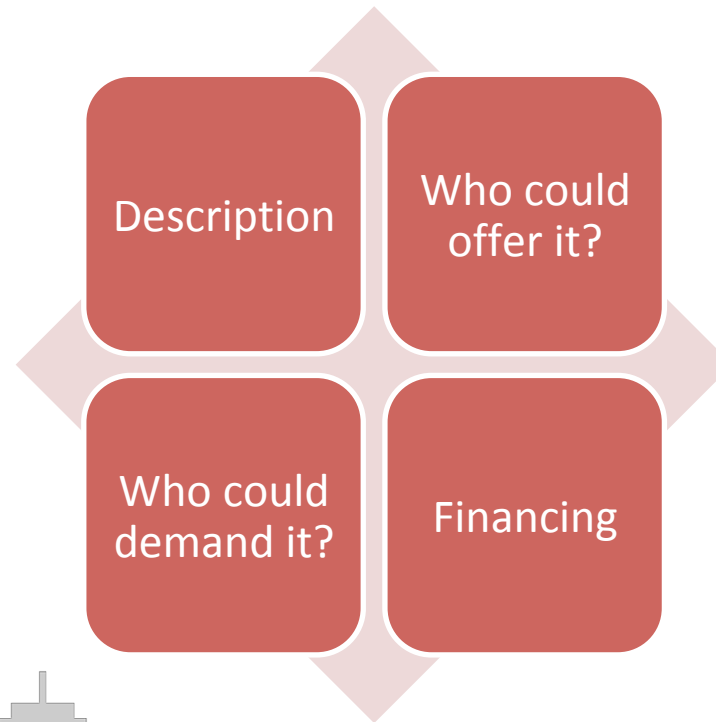


Guidelines for business models

2. SERVICE PROVIDED OR DEMANDED

Identification of services

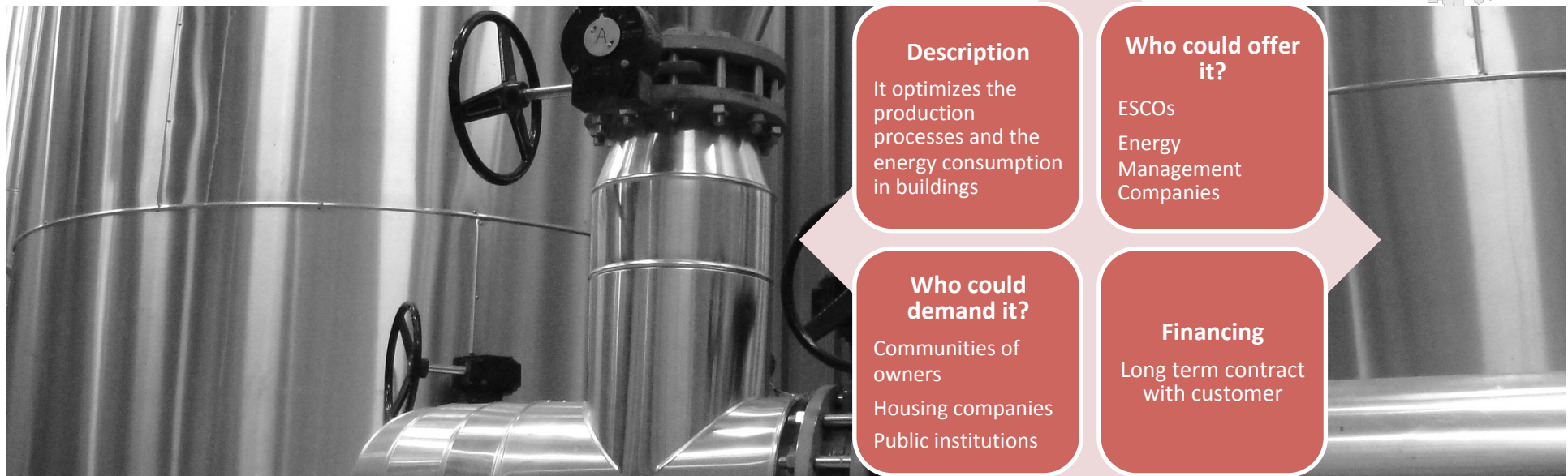
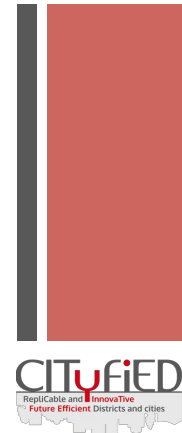
- Housing rent
- Construction management
- Energy management
- Design
- Implementation and execution
- Operation and maintenance
- Energy supply
- Measurement and verification
- Control and monitoring
- Development, distribution and sale of products
- Coordination and licensing



Guidelines for business models

2. SERVICE PROVIDED OR DEMANDED

EXAMPLE: ENERGY MANAGEMENT

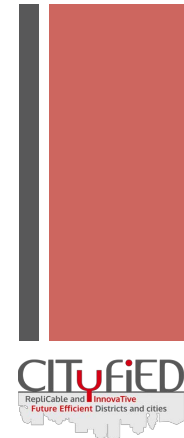


Guidelines for business models

3. TO WHOM IS THE SERVICE OFFERED

Identification of customers

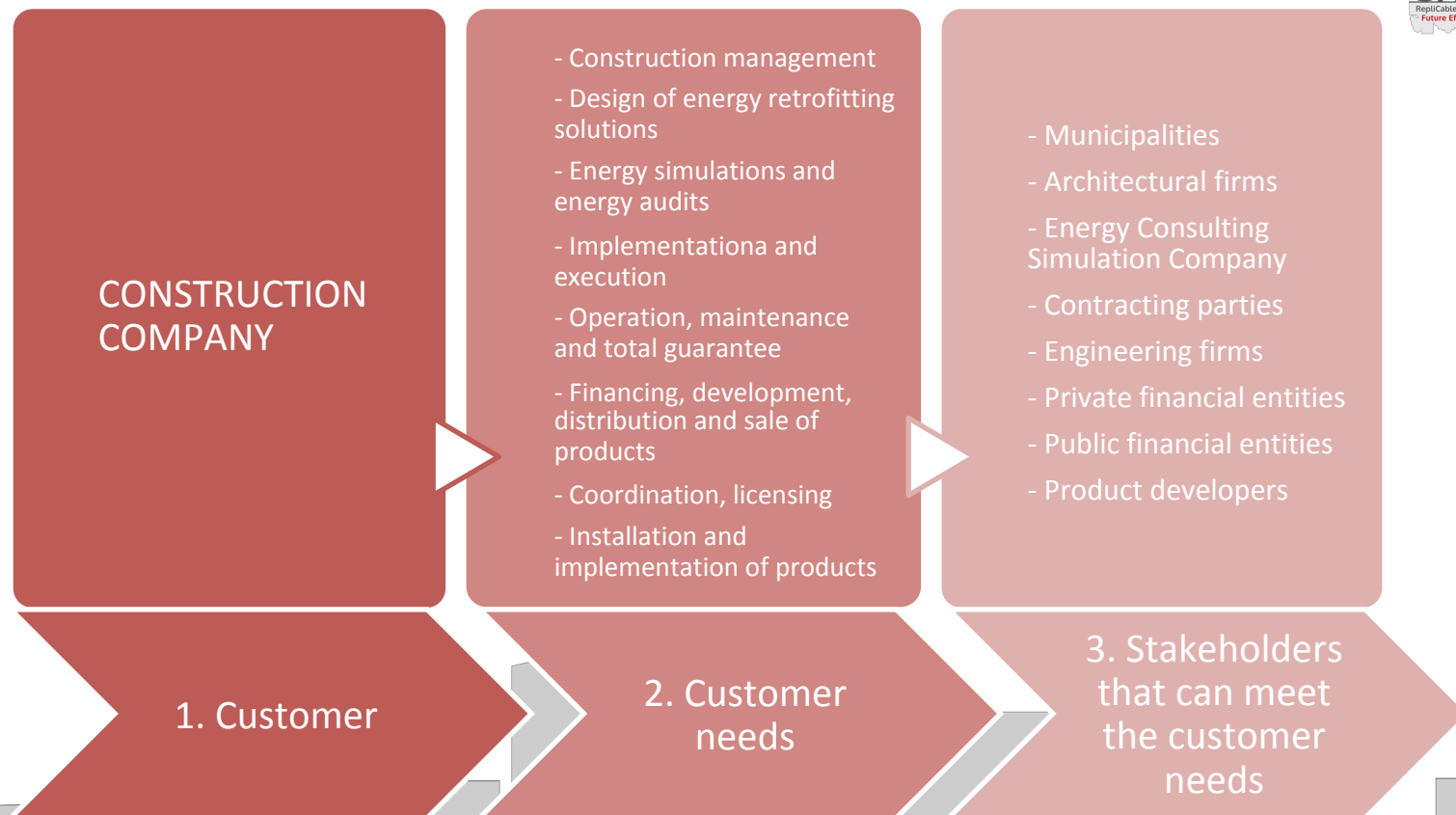
- Housing companies
- Municipalities
- Energy Service Company (ESCO)
- Energy Supply Company
- Construction Company
- Arquitectural firm
- Energy simulation consulting company
- Contracting parties
- Engineering firms
- Energy Management Company
- Private Financial Entities
- Public Financial Entities
- Measurement and Verification Company
- Monitoring Company
- Product developers



Guidelines for business models

3. TO WHOM IS THE SERVICE OFFERED

EXAMPLE: CONSTRUCTION COMPANY



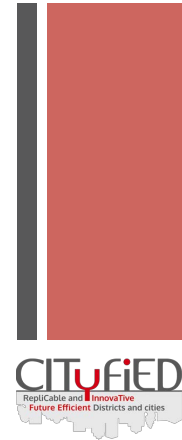


Summary

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Business models

- A new business model was needed in order to face the retrofitting projects that our cities' existing buildings require.
- The model consists of layers that must have active interaction with each other.
- The CITyFiED project provides guidelines to replicate the business model.
- These multiple-entry guidelines provide useful and easy information to encourage the stakeholders to develop further retrofitting projects.

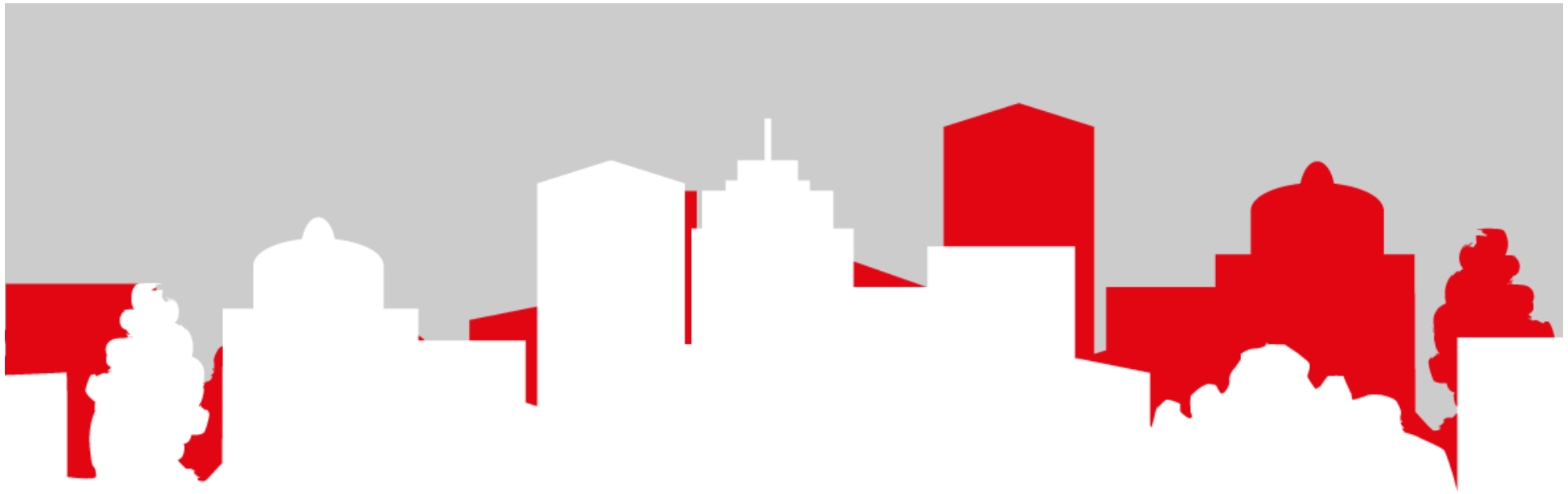


Thank you for your attention!!

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Inés Fernández [.ines.fernandezmielgo@veolia.com](mailto:ines.fernandezmielgo@veolia.com)

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CITYfiED Success Stories

youris.com
Marcello Bardellini

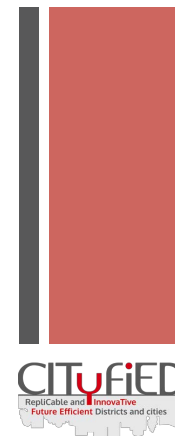
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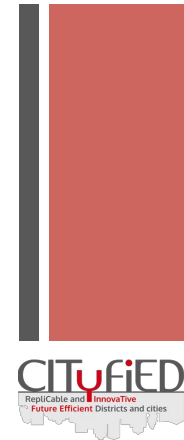
CITyFiED: Stories worth spreading



- **Community Building:**
 - **3** Demo sites, **11** City Cluster Cities, **44** Community of Interest Cities
 - Online community size: more than **1,600** online followers
- **Community engagement:**
 - **Smart APPs** developed to engage local residents at the demo sites
 - Face-to-face events & **Study Tours** to ensure community engagement, networking and further replication opportunities
 - Local events
 - Local **employment** opportunities
- **Community Acceptance:**
 - **Effective Communication** actions nurturing local citizens and stakeholders with key results and messages from the project
 - **Local Ambassadors** and privileged & credible channel to foster local acceptance



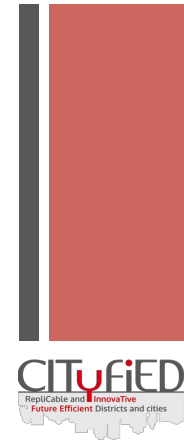
CITyFiED: a multi-prized EU project



- Innovative **Communication** Formats
- Corporate **Social** Responsibility
- 5th Global **District Energy Climate** Awards 2017
- Mapei Award for **Sustainable Architecture** 2017
- **Smart 50 Awards 2018**: Honouring the 50 most transformative smart projects each year. Energy Awards: CITyFiED
- 7th Edition of the **Sustainable Buildings** Awards 2018



Our Best Practice Book



- Download & Share it with your colleagues!
- Available on our CITYfiED.eu website



“thank you for
your **ATTENTION**
:)”

@rd_anibal

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