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Replication and Upscale Guide of the project

«Transforming Pella's Central Administration Building into a Near-Zero Energy Landmark with the New European Bauhaus principles»

Funded by the European Union

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1. Introduction

The New European Bauhaus constitutes an ambitious and multifaceted initiative of the European Union within the framework of the European Green Deal, which was established in 2020. The European Green Deal is inextricably linked to the New European Bauhaus, as both are part of the effort to position Europe as the world's first climate-neutral continent by 2050 (net-zero emissions), through the adoption of policies that decouple economic growth from resource use, promote the circular economy, and ensure a just transition.

The New European Bauhaus undertakes the cultural and creative dimension of the European Green Deal. It proclaims the need for an integrated approach to design in cities, communities, and urban environments, based on meaningful dialogue between culture, science, and technology, encouraging their interdisciplinary cooperation. Inspired by the historic Bauhaus movement of the 20th century (which combined art, craftsmanship, industrial design, and functionality), the New European Bauhaus brings this same philosophy into the contemporary era of the climate crisis, but with three modern core pillars:

Sustainability (green, circular solutions, zero pollution)
Aesthetics (style, quality of experience)
Inclusion (diversity, accessibility, affordable spaces).

Alongside the three pillars, the strategy also proposes three working principles: participation, interdisciplinary approach, and multi-level engagement.

The ultimate goal is the transformation of the spaces in which we live, promoting a way of living and creating that is beautiful, sustainable, and socially just. In this effort, it does not refer only to low-emission technologies or the circular economy, but also raises holistic questions about how we will live, reside, work, and feel in spaces that are simultaneously environmentally sustainable, aesthetically beautiful, socially inspiring, fair, and accessible. In order to achieve the above, it calls upon architects, designers, artists, engineers, municipalities, citizens, businesses, as well as institutional bodies to collaborate through appropriate resources and funding, from small local interventions to large-scale projects, in order to achieve a more beautiful, fair, sustainable, and inclusive European design of urban and broader social ecosystems.

The present study forms part of Subproject 1 of the action entitled “Transforming Pella's Central Administration Building into a Near-Zero Energy Landmark with the New European Bauhaus principles”. Relevant is Funding Contract (Grant Agreement) No 749 (07EL001826R), which was signed on 21/05/2025 with a total budget of EUR 60,000. The said action falls within the framework of the European City Facility – EUCF project, which is funded by the European Union’s LIFE Programme, in accordance with the terms and conditions set out in the aforementioned Grant Agreement.

The Investment Plan of the Municipality of Pella focuses on interventions at the central municipal building (Giannitsa Municipal Building – Town Hall), which hosts the majority of its administrative and political services. A radical energy upgrade of the building is proposed, so that it is presented as a model public administration unit that promotes:

a) energy efficiency in the climatic zone of Northern Greece

b) the principles of the New European Bauhaus.

The main objectives that will be achieved through the implementation of the investment plan are:

- Achievement of Near-Zero Energy Building (nZEB) standards:
- Renovation of the central municipal building with the aim of significantly reducing energy consumption and integrating renewable energy solutions, ensuring compliance with nZEB performance levels.
- Highlighting a leading role in energy efficiency:
- Establishment of the building as a reference point for energy-efficient public administration facilities in the northern climatic zone of Greece.
- Application of the principles of the New European Bauhaus Initiative in energy efficiency:
- Adoption of solutions that are not only sustainable, but also inclusive and aesthetically high-quality.
- Improvement of operational efficiency:
- Upgrade of working conditions for employees and visitors, through optimization of indoor climate, lighting, and energy systems.
- Enhancement of public awareness:

- Promotion of the building as a flagship project, aiming to inspire similar energy upgrades in public and private entities throughout the region.

The present study analyses in depth the possibilities of replication and upscaling of the proposed approach to the energy renovation of public buildings, as developed and tested within the framework of the pilot implementation. The analysis is not limited to the mere technical repetition of individual solutions, but focuses on the transfer of an integrated methodology, capable of being adapted to different local, climatic, social, and administrative environments, while consistently maintaining the quality characteristics deriving from the principles of the New European Bauhaus (New European Bauhaus – NEB).

The distinction between replication and upscaling is critical. Replication αφορά the application of the approach to similar or comparable buildings and municipal structures, while upscaling examines the potential for expansion to larger systems: municipal complexes, entire building portfolios, neighborhoods, or even broader municipal infrastructures. In both cases, the central objective is the transition from the “project” to the “model”.

2. Replication Plan

2.1The notion of replication beyond the technical replicate.

The concept of replication, as defined within the framework of the present study, acquires a fundamentally different and broadened character compared to traditional approaches in the field of energy upgrades. Replication is not treated as a mechanistic or automated repetition of technological solutions, nor as a simple transfer of technical specifications from one project to another. On the contrary, it is approached as the ability to transfer and apply a coherent decision-making, design, and implementation framework, which can be dynamically adapted to different local and administrative environments.

This approach reflects a more mature and systemic understanding of the energy transition at the local level. Municipalities, as key actors in the implementation of public policies, are called upon to operate in environments of high complexity, with limited resources, varying levels of technical capacity, and strong social accountability. Under these conditions, the success of a project does not

depend exclusively on the selection of the “right” technologies, but on the ability to integrate them into a functional, economically viable, and socially acceptable framework.

A central element of this framework is the technical choices related to energy efficiency, which constitute the basis of every intervention. However, within the logic of replication, technical solutions do not function as fixed, predefined packages. They are treated as sets of options that must be evaluated in relation to the building stock, the climate, the uses, and the needs of the users. Replicability arises not from the repetition of the same technical outcome, but from the repetition of the method of selecting technical solutions, based on clear criteria and procedures.

Beyond the technical parameters, the replication framework systematically incorporates economic and financial instruments. Experience shows that many energy interventions fail to be replicated not because they are not technically viable, but because they are not economically understandable or financially accessible. In the present model, the economic dimension is not limited to cost estimation, but also includes the analysis of operational savings, the exploration of funding sources, and the possibility of combining public and private resources. Thus, replication becomes feasible even for municipalities with limited budgets, provided that they possess a clear and replicable financial rationale.

Particular emphasis in the framework of the present study is placed on the integration of the principles of aesthetics and social inclusion, which are directly linked to the vision of the New European Bauhaus. Replication, in this case, does not concern only the transfer of functional solutions, but also the replication of a design culture that emphasizes the quality of the built environment and the user experience. Interventions must be visible, understandable, and acceptable to citizens, adapted to the local identity and social conditions of each municipality. In this way, replication does not conflict with the diversity of places, but respects it and transforms it into a creative factor.

At the same time, the replication framework explicitly includes governance and participation processes, acknowledging that the implementation of public projects is primarily an institutional and organizational challenge. The clear allocation of roles, transparency in decision-making, and the involvement of stakeholders strengthen the resilience of the model and facilitate its replication in different administrative frameworks. Rather than requiring a high level of specialized technical

expertise, the municipality is called upon to follow a structured process, which can also be supported by external partners or inter-municipal synergies.

One of the most critical characteristics of this approach is that replication becomes feasible without the complete alignment of local conditions with those of the pilot application. Instead of pursuing uniformity, functional equivalence is sought: different municipalities can achieve comparable quality outcomes by following the same methodology, but through different individual choices. This way of thinking shifts the emphasis from “what exactly was done” to “how and why it was done,” rendering the model essentially replicable.

Overall, the concept of replication in this study functions as a mechanism for knowledge diffusion, not as a mechanism of copying. Through the transfer of an integrated framework that combines technical, economic, social, and institutional parameters, municipalities gain the ability to adapt and adopt good practices with confidence and security. In this way, replication is transformed from a theoretical requirement of funding programmes into a practical tool for accelerating the sustainable transition at the local level.

2.2 Structure of the replication manual

As a key replication tool, the development of a Technical Replication Guide (Replication Manual) is proposed, which systematically brings together all the steps that were followed, from the initial assessment to the maturation and implementation phase.

This guide is structured into five main sections:

- Preliminary assessment and baseline analysis
- Selection of technological solutions and intervention packages
- Budgeting and economic analysis
- Implementation methodology and project governance
- Templates and replication tools

Each section operates autonomously while also being complementary, allowing municipalities to select the depth and scope of application according to their level of maturity.

2.3 Step 1 – Systematic Survey and Technical Assessment

The first step of the methodology constitutes the fundamental basis upon which the entire plan is built. The systematic survey of the target building or buildings is not treated as a typical data-collection procedure, but as a critical phase of strategic planning, which directly affects the quality, realism, and replicability of all subsequent stages.

Failures or shortcomings at this stage may lead to:

- incorrect selection of technological solutions,
- underestimation or overestimation of costs,
- limited ability to compare scenarios,
- inability to transfer experience to other municipalities.

For this reason, the survey was designed as a structured, repeatable, and standardized process, rather than as a fragmented technical recording.

The main purpose of the first step is twofold:

- Technical: To accurately record the existing condition of the building in terms of geometry, energy performance, and technical systems.
- Strategic: To create a common reference point (baseline), which enables the comparison of alternative interventions, the evaluation of progress after implementation, and the replication of the methodology in other buildings or municipalities.

The survey process is organized into four main axes, which cover the full range of parameters affecting energy and functional performance.

Architectural and Building Data

The survey begins with the collection of basic architectural data, such as:

- geometry and total floor areas,
- orientation and exposure to climatic conditions,
- construction materials of the building envelope,

- functional uses of the spaces.

This information is critical, as it determines the building's passive energy behavior and the potential for applying low-cost, high-benefit interventions (e.g. shading, natural lighting).

Energy Data and Operational Profiles

The collection of energy data concerns:

- electricity consumption,
- energy consumption for heating,
- operational use profiles (schedules, intensity of use).

The requirement for data covering at least a three-year period is not formal but essential, as it allows for the smoothing of anomalies, the understanding of seasonal variations, and the reliable estimation of energy savings.

Technical Condition of the Envelope and Electromechanical Systems

The technical assessment concerns the condition of thermal insulation and openings, the type and age of heating and cooling systems, lighting efficiency, and any malfunctions or deficiencies. Within the framework of the pilot implementation, this assessment was reinforced through an energy audit (2025) carried out by a certified energy auditor, including on-site recording and analysis of actual operating conditions.

Social and Functional Characteristics of Use

The survey goes beyond technical data and incorporates social and functional parameters, such as the number and type of users, levels of thermal comfort, accessibility issues, and indoor environmental quality. The inclusion of these elements is aligned with the principles of the New European Bauhaus and ensures that future interventions will not be limited to energy performance, but will improve the overall user experience.

Climatic Zone and nZEB Requirements

The final sub-component of the first step concerns the analysis of the climatic zone and the requirements for nearly zero-energy buildings (nZEB). This analysis enables realistic target-setting, compliance with national and European standards, and comparability with other applications.

2.4 Step 2 – Selection of Technological Solutions and Intervention Packages

The selection of technological solutions within the framework of the present study does not follow the usual practice of applying individual energy measures in a fragmented manner. Instead, it is based on a systematic and structured logic of "intervention packages." This approach reflects the modern understanding of building energy renovation, according to which achieving high levels of energy performance and decarbonisation requires the combination of multiple, mutually complementary actions integrated into a single strategic framework

The concept of an "intervention package" functions as an intermediate level of planning between the initial baseline assessment and the final selection of solutions to be implemented. Rather than requiring the Municipality to decide on each technology separately, the packages bring together groups of interventions that collectively aim to improve the energy, environmental, and functional performance of the building. In this way, the selection of solutions is transformed from a low-level technical issue into a strategic process for evaluating scenarios.
The main categories of intervention packages are proposed to be organized around five fundamental pillars:

- **Interventions in the building envelope**, such as thermal insulation of the masonry and roof, replacement of window and door frames, and shading systems. These interventions form the basis of the energy upgrade, as they drastically reduce energy needs before the selection of active systems.
- **Upgrade of electromechanical (M&E) systems**, with emphasis on high-efficiency technologies, such as heat pumps and LED lighting. These interventions aim to maximize the building's energy performance under real operating conditions.

- **Utilization of renewable energy sources**, mainly through the installation of photovoltaic systems with net metering. This category is directly linked to energy autonomy and the reduction of the carbon footprint.
- **Digital management systems**, such as the Building Management System (BMS), which enable the continuous monitoring, optimization, and documentation of energy performance.
- **Biophilic and human-centred interventions**, which integrate natural elements, light, comfort, and improved ergonomics, ensuring that the energy upgrade is also translated into a qualitative improvement of the users' everyday experience.

The grouping of interventions into these categories enables the systematic development of alternative packages, which can be adapted to the needs and capacities of different Municipalities. The interventions will be determined through the Energy Audit and the corresponding certificate, presenting alternatives from which the basic selection will be made.

The replication of the methodology requires that Municipalities do not select solutions in a fragmented manner or on the basis of isolated criteria, such as initial cost. Instead, they are called upon to compare alternative intervention-package scenarios based on three main sets of criteria: energy, economic, and social criteria. For this purpose, a Scenario Comparison Template is developed, functioning as a decision-making tool. The template enables the comparable assessment of different packages, ensuring that the final selection is documented in an objective manner rather than being based on subjective estimates or circumstantial pressures. The use of the template strengthens the replicability of the approach, as it allows other Municipalities to repeat the comparison process, even if they choose different technical means or operate within a different climatic and economic context.

2.5 Step 3 – Integration of the Principles of the New European Bauhaus

The stage of integrating the principles of the New European Bauhaus (NEB) constitutes a critical transitional point in the methodology, as it marks the shift from the technical documentation of the energy upgrade to a holistic design approach with social, cultural, and aesthetic dimensions.

The integration of the NEB is not treated as a theoretical or communication-oriented supplement to the technical measures, but as a structured value-added methodology capable of transforming conventional energy interventions into models of sustainable and human-centered public design.

Within the framework of the present study, this stage was developed with a view to its replicability by other Municipalities, regardless of their size or administrative capacity. For this reason, the methodology was not based on fragmented aesthetic interventions, but on clearly defined axes of action that can be applied across different building and social contexts.

The methodology for integrating the NEB was organised around three fundamental axes:

(a) an interdisciplinary and cross-sectoral approach,

(b) a participatory approach,

(c) the development of NEB-aligned interventions.

a. Interdisciplinary and cross-sectoral approach (Transdisciplinary approach)

The first and fundamental prerequisite for the meaningful integration of the principles of the New European Bauhaus is the establishment of an interdisciplinary working group. A single-theme or purely technical approach may significantly limit the ability of the interventions to generate broader social and spatial value.

The team may include a range of disciplines, such as an architect, a civil engineer–urban planner, an energy auditor, an electrical and mechanical engineer, a landscape architect, and a designer; this list is indicative and not restrictive. Cross-sectoral collaboration functions as a mechanism for moving beyond the narrow perception of energy efficiency as a numerical indicator. Technical interventions should be assessed by the team not only on the basis of energy savings, but also in terms of:

- their contribution to overall architectural quality,
- the relationship of the building with the public space,
- the improvement of the user experience,

- the potential to integrate elements of local identity.

In this way, the interdisciplinary approach becomes a central tool for embedding the values of the NEB — sustainability, aesthetics, and inclusion — at every level of design.

b. Participatory approach

The second axis of the methodology concerns the participatory dimension, which constitutes a key pillar of the philosophy of the New European Bauhaus. Participation should not be treated merely as a symbolic consultation process, but rather as a mechanism for meaningful feedback and the social integration of the research.

Within this framework, various tools are proposed, such as the creation of a dedicated website to present the actions and progress of the study, with the possibility for citizens and stakeholders to submit comments and proposals; printed and digital communication tools, such as informational leaflets, newsletters, open-access webinars; and the use of structured questionnaires.

c. Development of NEB-aligned interventions

The third axis of the methodology concerns the development of specific, applied interventions that practically integrate the principles of the New European Bauhaus into the technical measures for energy upgrading. A project is considered successful in the spirit of the NEB when it meets three conditions:

- it is sustainable, aesthetically high-quality, and socially inclusive

- it produces measurable social and environmental impact

- it has the potential for replication and inspiration for other projects.

Based on the technical measures identified in the first stage, each intervention is reassessed through five guiding questions:

- how it can make sustainability visible,
- how it can enhance aesthetic quality,
- how it can improve the social experience;
- how it can be connected with local identity and cultural heritage,

- how it can function as a model for other public bodies.

Within this framework, interventions can be developed such as the use of thermal insulation as a "canvas" for expressing local identity, biophilic design of indoor and outdoor spaces, a green roof combined with photovoltaic systems, lighting as an element of experience and orientation, accessibility as an expression of architectural quality, and the BMS as a tool for transparency, education, and participation.

The following are some standardized guidelines for the interventions and their character, presented in the form of YES/NO or DO/DON'T.

Tables "DO / DON'T" by Intervention Category

A. Building Envelope

DO ☑	DON'T ✗
First analyze the local architecture and scale.	Apply standard thermal insulation solutions "blindly"
Use thermal insulation as an opportunity to redesign the façades.	Treat the façades as a purely technical issue.
Select colors/materials that are compatible with the local identity.	Apply bold or incompatible color schemes.
Make sustainability visible in the public space.	Fully conceal the change.

B. M&E Systems (Heating – Cooling – Lighting)

DO ☑	DON'T ✗
Design with user comfort at the centre	Oversize the systems
Take into account operating hours and actual use	Copy studies without adaptation

DO ☑	DON'T ✗
Emphasise lighting quality	Treat LED lighting only as an energy-saving measure
Make the operation understandable to users	Leave the systems "invisible" and incomprehensible

C. Renewable Energy Sources (RES)

DO ☑	DON'T ✗
Examine visibility and social acceptance	Install RES without spatial planning
Architecturally integrate the photovoltaic systems	Cause visual disturbance
Present RES as a public good	Limit RES to an "accounting tool"
Combine RES with green infrastructure	Ignore the NEB aspect

In the case of green elements combined with photovoltaic systems on the roof:

DO ☑	DON'T ✗
Check the load-bearing capacity of the roof and select a lightweight solution, such as plant containers	Assume that the roof can support full extensive planting
Install the PV panels on elevated mounting structures with the correct tilt	Place panels directly on the flat roof without coordination
Create planting zones between the rows of panels	Cover the entire roof exclusively with panels
Design the system as an integrated whole, combining planting and PV	Treat planting and PV as separate projects

DO ☑	DON'T ✗
Use evapotranspiration to cool the panels	Ignore the microclimatic benefit of planting
Place plants in the shaded zones created by the PV panels	Plant arbitrarily, without considering shading conditions
Select species that are resistant to drought and partial shade	Select plants with high irrigation requirements
Document the increase in PV performance, e.g. 5–8%	Present planting only as a "green element"

DO ☑	DON'T ✗
Use native plant species from the local area	Introduce non-adapted or purely ornamental species
Design a drainage and stormwater retention system	Leave stormwater management out of the design
Highlight the role of the roof in supporting biodiversity	Limit the environmental narrative only to CO_2
Link the measure to the reduction of the urban heat island effect	Treat the roof only as an energy surface

DO ☑	DON'T ✗
Organise plant containers and panels in a clear geometric layout	Create a fragmented and overly "technical" appearance
Highlight the roof as a new architectural layer	Treat the roof as an invisible or secondary space

DO ☑	DON'T ✗
Integrate technology within a natural setting	Present the PV panels as the dominant industrial element
Create a unified composition of technology and nature	Visually separate greenery from technology

DO ☑	DON'T ✗
Make the roof a tool for environmental education	Keep the function of the roof "hidden"
Use QR codes / graphics for explanation	Assume that citizens "are not interested"
Integrate the roof into the Municipality's public narrative	Treat the intervention as purely technical
Highlight the role of the Town Hall as an example	Fail to make use of the building's symbolic role

D. Digital Systems & BMS

DO ☑	DON'T ✗
Use the BMS as a tool for transparency	Keep it only for technicians
Train staff and users	Assume that they "are not interested"
Display simple consumption indicators	Present overly complex technical data
Strengthen energy awareness	Limit yourself to passive monitoring

E. Public & Biophilic Space

DO ☑	DON'T ✗
Treat the building as a public place	View it only as an administrative machine
Combine greenery, light, and local materials	Consider the NEB as "unnecessary"
Improve the citizens' experience and integrate the cultural dimension	Ignore social parameters
Make the space friendly and inclusive	Design only for energy indicators

DO ☑	DON'T ✗
Treat greenery as a functional element of well-being	Use greenery only as decoration
Introduce plants in areas associated with stress, such as entrances and waiting areas	Place plants randomly, without a spatial strategy
Create "transitional spaces" with natural elements	Maintain an abrupt transition between exterior and interior spaces
Combine plants, materials, and light	Apply biophilic design in a fragmented manner
Create spaces that offer calmness and familiarity	Maintain cold, linear administrative spaces

DO ☑	DON'T ✗
Transform waiting into an experience	Maintain linear waiting rooms
Create discussion islands	Arrange seats in rows
Use organic forms	Apply strict, standardised furniture

DO ☑	DON'T ✗
Combine greenery, materials, and seating	Treat waiting as a "necessary evil"
Make citizens feel welcome	Create a cold administrative environment

2.6 Step 4 – Self-assessment of Interventions

The self-assessment stage of the proposed interventions constitutes a critical strategic planning tool, particularly in cases where the Municipality is required to select a subset of interventions or to prioritise them in terms of timing and financing. Self-assessment can function as a mechanism for evidence-based decision-making, bridging technical design with the values and priorities of the New European Bauhaus (NEB).

The need for such a stage arises from the complexity of contemporary energy and architectural upgrade interventions. Not all interventions are equivalent in terms of their energy contribution, social impact, aesthetic value, or cost. Self-assessment allows these differences to be captured in a systematic way, so that final choices are not based on fragmented criteria or circumstantial pressures, but on an overall and balanced assessment.

Multidimensional evaluation logic within the NEB framework

Within the framework of the New European Bauhaus initiative, the assessment of interventions cannot be limited to conventional technical or economic indicators. The NEB promotes a broader understanding of the role of public buildings, where sustainability is intrinsically linked to human experience, aesthetic quality, and social inclusion. Consequently, the selection of evaluation criteria was based on a multidimensional logic that reflects this philosophy.

The four main evaluation criteria — Energy Benefits, Social Impact, Aesthetic Upgrade, and Cost — form a coherent framework within which interventions can be compared and prioritised with

transparency and clarity. The first three criteria directly reflect the fundamental values of the NEB: sustainability, inclusion, and beauty. The fourth criterion, cost, is included as a factor of economic viability and rational management of public resources, without, however, outweighing the qualitative values.

Self-assessment, therefore, does not function as a simple scoring exercise, but as a tool for interpreting and weighting different forms of value.

Energy Benefits as a Core Pillar

Energy benefits constitute the core of the green transition and a key objective of European policies for climate neutrality. Within the framework of self-assessment, this criterion concerns the reduction of energy consumption, the improvement of the thermal performance of the building envelope, the efficiency of M&E systems, and the capacity to produce clean energy through renewable energy sources. However, in line with the philosophy of the NEB, energy benefits are not assessed solely as a technical performance indicator. They are also understood as a contribution to collective environmental responsibility and as an element of visible sustainability. Interventions that make the energy transition understandable and perceptible to citizens — such as photovoltaic systems combined with green infrastructure, or management systems with public visibility — acquire increased strategic value.

Social Impact and Human Experience

Social impact is a central element of the self-assessment, as the Town Hall is not merely a technical object, but a living public space with intensive everyday use. This criterion assesses the extent to which each intervention contributes to improving accessibility, comfort, psychological experience, and the participation of citizens and employees.

interventions that strengthen biophilic design, the creation of welcoming waiting areas, environmental education, or social interaction acquire particular importance. Within the framework of the self-assessment, social impact is treated as equal to technical effectiveness, reflecting the NEB perspective that the quality of public space is a fundamental component of sustainability.

Aesthetic Upgrade as a Vehicle for Visible Sustainability

Aesthetic quality is a fundamental value of the New European Bauhaus and an integral evaluation criterion. Architectural expression, materiality, light, textures, and the integration of elements of local identity directly influence the way citizens perceive and accept the interventions.

At the self-assessment stage, aesthetic upgrading is not treated as a decorative addition, but as an essential means of strengthening the recognizability and symbolic role of the building. Interventions that connect sustainability with culture and local identity have a multiplier effect, as they enhance both their acceptance and their replicability.

Cost as a Complementary Criterion

Cost is included in the self-assessment as a necessary parameter of economic viability, without replacing the qualitative criteria. The approach adopted does not concern a detailed financial budget, but rather a qualitative cost estimate on a relative scale (1–5), based on the comparison of interventions with one another and on standard technical experience from similar projects. The use of this scale allows interventions to be prioritised in a flexible and realistic manner, without confining the design process within narrow budgetary constraints. Cost, therefore, functions as a balancing filter, enabling the Municipality to combine low-cost, high-impact interventions with strategic, more demanding investments.

Role of Self-assessment in Strategic Selection

Overall, the self-assessment stage transforms the list of proposed interventions into a strategic planning tool. It enables the selection, phased implementation, or prioritization of interventions based on a balanced value system, in which energy performance, social quality, aesthetic experience, and economic realism coexist. In this way, self-assessment is not merely a technical stage, but embodies the philosophy of the New European Bauhaus: an approach in which the energy transition becomes simultaneously human, beautiful, and fair.

A proposed self-assessment table is provided in the Annex.

2.7 Step 5 – Implementation Methodology and Project Governance

Experience from energy upgrade projects in public buildings shows that failure in replication is not, in most cases, due to technical limitations or inadequate technological solutions. On the contrary, the main factors of failure are found in project governance, insufficient coordination among the stakeholders involved, and the absence of clear decision-making and monitoring procedures.

For this reason, Step 5 of the methodology is not treated as an administrative or secondary phase, but as a critical pillar of replicability. A project may be technically sound, economically viable, and fully aligned with the principles of the New European Bauhaus, yet still fail if clear responsibilities, a realistic timeline, and a stable monitoring mechanism are not in place.

The implementation methodology proposed in this manual aims to reduce institutional, organisational, and operational risk, ensuring that the interventions can be implemented not only at pilot level, but can also be replicated by other Municipalities with different conditions and administrative structures.

The proposed methodology is based on four fundamental principles, which run horizontally across all individual stages:

1. Clear allocation of responsibilities and duties

Each role — political, technical, and advisory — is clearly defined in order to avoid overlaps, ambiguities, and delays.

2. Structured and realistic timeline

The project is organised into distinct phases, with specific deliverables and control points.

3. Continuous evaluation and progress monitoring

Implementation is monitored through clearly defined indicators and evaluation milestones.

4. Post-implementation follow-up

The project does not end with the delivery of the interventions, but continues through systematic monitoring of performance and actual use.

These principles transform the implementation methodology from a linear process into a governance cycle, strengthening the sustainability and replicability of the project.

Implementation Phases

The implementation of the interventions is organised into five distinct phases, which can be adapted depending on the size of the project, the institutional framework, and the administrative capacity of the Municipality.

Phase 1 – Preparation and Studies

The first phase includes:

the finalisation of the intervention packages selected in the previous assessment stage;

the preparation or updating of the necessary technical studies;

ensuring compliance with national and European regulatory requirements, such as nZEB, urban-planning approvals, etc.

At this stage, the technical and institutional foundations of the project are established. Any omissions or deficiencies in this phase are carried forward and multiplied in the subsequent stages.

Phase 2 – Maturation and Financing

The second phase concerns the transformation of the technical plan into a mature investment project. It includes:

the investigation and securing of funding resources, including European, national, and mixed funding schemes;

the adaptation of the project to the requirements of the available funding instruments;

the updating of timelines and budgets.

Especially for replication in other Municipalities, the existence of a clear and repeatable project-maturation model is a decisive success factor.

Phase 3 – Tendering Procedures

The third phase concerns:

the preparation of technical tender documents;

the conduct of tendering procedures;

the selection of contractors and suppliers.

The quality of the tendering procedures directly affects the final outcome, both technically and financially. Within the framework of the methodology, particular attention is recommended to the integration of qualitative criteria — including NEB values — into the technical specifications.

Phase 4 – Implementation

The implementation phase includes:

the construction or installation of the interventions;

coordination between different contractors;

ensuring compliance with the timeline and specifications.

Stable technical supervision and a clear line of communication between contractors, technical services, and the administration are required.

Phase 5 – Monitoring and Evaluation

The final phase concerns the period after completion of the project and includes:

monitoring of energy performance;

assessment of the actual use of the spaces;

collection of data for future replication.

This phase is critical for the dissemination of knowledge and for documenting the success of the interventions.

Project Governance and Allocation of Roles

A clear allocation of roles is a prerequisite for successful implementation and a central guideline of the present guide.

- **Political Responsibility**

The political leadership of the Municipality ensures the institutional support of the project, takes the strategic decisions, and acts as the guarantor of the project's continuity.

- **Technical Services**

  The technical services are responsible for technical coordination, supervise implementation, and ensure compliance with the specifications.

- **Consultants**

  External consultants provide technical and strategic support to the Municipality, transfer know-how, and contribute to the replicability of the methodology.

- **External Stakeholders**

  Contractors, funding bodies, and institutional stakeholders participate within the framework of their responsibilities and are subject to clear terms and controls.

Step 5 transforms design into action and constitutes the critical link between innovation and implementation. Through a clear implementation methodology and strong governance, the project gains stability, reliability, and the capacity for meaningful replication by other Municipalities.

3 Upscaling Plan

The upscaling possibilities are offered at three levels, which are analysed below.

The levels of upscaling do not constitute sequential stages, but rather a spectrum of options. Each Municipality may operate at one or more levels, depending on its needs, capacities, and vision.

3.1 From the Individual Building to the System

he concept of upscaling is a key element of any integrated strategy for energy and spatial upgrading, particularly when it concerns public infrastructure and buildings. While pilot implementation in a single building allows for experimentation, the testing of technological solutions, and the development of new design approaches, the real contribution of a project to the sustainable transition is achieved only when these solutions can be expanded and applied at a larger scale. The Upscaling Plan, therefore, is not simply a continuation of the Replication Plan, but a qualitative transition from the “project-as-example” to the “implementation system.”

Within the framework of the present study, upscaling is recognised as a complex strategic choice that requires the readjustment of objectives, tools, and methodologies. Each level of scale introduces new parameters: increased administrative complexity, differentiated social needs, new financial requirements, and broader environmental impacts. For this reason, upscaling requires a shift in perspective: from treating the building as an isolated object to understanding it as part of a wider urban, social, and energy system.

The transition from the upgrade of a single building to a larger scale is directly linked to the philosophy of the New European Bauhaus (NEB), which promotes the integration of sustainability, aesthetic quality, and social inclusion at all levels of the built environment. In this spirit, upscaling is not limited to increasing energy savings or reducing carbon dioxide emissions; it also extends to the creation of new urban experiences and new forms of collectivity.

An individual public building, such as the Giannitsa Town Hall, can act as a catalyst for change, but systemic impact is achieved when similar interventions are connected to one another. Upscaling enables the transition from “energy upgrading of buildings” to “energy and social upgrading of

places." At this level, interventions acquire new meaning: they contribute to urban regeneration, strengthen neighbourhood cohesion, and shape a coherent narrative of sustainable development for the Municipality as a whole.

At the level of a building complex, governance remains manageable, as the number of stakeholders involved is limited. This makes this level ideal for Municipalities that wish to test upscaling without entering into overly complex management schemes. Successful implementation at the complex level can then serve as a model for larger scales.

3.2 Strategic Implementation in Municipal Complexes

The first level of upscaling concerns the application of the approach to municipal complexes, such as school complexes, administrative clusters, or groups of buildings with common use and operation. At this scale, energy upgrading acquires a collaborative and interoperable character. Shared heating, cooling, energy production, or management systems can be designed with greater efficiency and economies of scale. Implementation in municipal complexes allows for economies of scale and improved system design. Common heating solutions, shared photovoltaic systems, or unified management systems can reduce costs and increase performance.

Upscaling at this level requires:

- mapping the entire building stock;
- grouping buildings according to use and energy profile;
- developing integrated intervention packages.

The portfolio approach is aligned with modern sustainable management practices, as it enables:

- the grouping of buildings with similar characteristics;
- the gradual implementation of interventions based on priorities;
- the creation of unified design and operational standards.

The main challenge at this scale is prioritisation. Not all buildings have the same energy intensity, the same social significance, or the same need for intervention. The portfolio approach allows the

Municipality to set priorities, taking into account energy performance, use, visitor intensity, and the social and symbolic role of each building. In this way, interventions are integrated into a long-term plan and do not depend on fragmented funding opportunities or ad hoc decisions.

At portfolio level, the Municipality gains increased capacity to leverage resources. The aggregation of interventions enables the attraction of larger funding instruments, the development of energy performance contracts (ESCO), and cooperation with national and European bodies. At the same time, the administrative maturity of the Municipality is strengthened, as monitoring, accountability, and continuous evaluation mechanisms are required. This form of upscaling transforms energy upgrading from a technical project into a municipal policy, with clear objectives, indicators, and a defined time horizon.

The importance of upscaling at the complex level is not limited to technical benefits. It creates conditions for shared practices of use, exchange of experience among users, and the development of a common sustainability identity. A school complex, for example, can function as a living laboratory for sustainable practices, linking energy upgrading with environmental education and social participation.

Furthermore, the application of the NEB principles at portfolio level ensures that sustainability is not limited to isolated “flagship buildings”. Aesthetic quality, inclusion, and visible sustainability are embedded across multiple buildings, creating a coherent image for the city. The Municipality gradually builds a recognizable identity of sustainable and human-centred architecture.

3.3 Implementation at Neighborhood Level

The third level of upscaling concerns the application of the approach to neighborhoods or areas with homogeneous characteristics, introducing the notion of spatial and social scale. In this case, energy upgrading is directly linked to issues of social cohesion, public space, and urban identity. Interventions are not limited to buildings, but extend to public infrastructure, open spaces, and the everyday routes of residents.

Upscaling at neighborhood or area level constitutes the most ambitious, but also the most transformative, level of implementation. Here, energy upgrading no longer concerns only buildings, but the entire urban environment and the daily life of residents.

Upscaling at neighborhood level enables energy policy to be connected with broader objectives of urban regeneration. Interventions can act as a lever for improving quality of life, strengthening the sense of belonging, and promoting collective sustainability practices. At this level, the principles of the New European Bauhaus (NEB) are fully expressed, as sustainability becomes visible in public space and is experienced daily by citizens.

At neighborhood level, interventions are linked to public spaces, mobility infrastructure, green routes, and social functions. Energy is treated as a common good, rather than as an individual issue for each building. The concept of energy communities, collective energy production and consumption, and the participation of residents acquire a central role. In this way, the neighborhood is transformed into a sustainability ecosystem, where the energy, social, and cultural dimensions coexist.

Implementation at neighborhood level represents a qualitative leap, as it introduces the dimension of collectivity. Energy is treated as a shared resource and not as an individual matter for each building.

Within this framework, interventions can be linked to:

- energy communities;
- shared renewable energy sources;
- the upgrading of public spaces and green infrastructure.

At this scale, the principles of the New European Bauhaus are expressed in the most integrated way. This logic is fully compatible with the NEB principles and strengthens the social acceptance of interventions. Sustainability becomes visible in streets, squares, and neighborhoods. Aesthetic quality upgrades public space, while inclusion ensures that the transformation concerns everyone.

The neighborhood is therefore not merely a place of residence, but a place of identity, experience, and collective future.

3.5 Financing Opportunities at Scale

Scaling energy and spatial upgrade interventions from individual buildings to larger levels of implementation — such as municipal complexes, building portfolios, or entire neighbourhoods — requires the existence of an integrated and flexible financing framework. Unlike pilot implementation, where a single financing instrument is often sufficient, upscaling requires a combination of sources, tools, and mechanisms that can operate complementarily and support increased investment volumes and project complexity.

Within the framework of the present study, financing is not treated as a simple process of securing resources, but as a strategic planning tool. The selection and combination of financing mechanisms directly affects the scope of upscaling, the implementation timeline, and the degree of involvement of public and private stakeholders. The Upscaling Plan, therefore, integrates the financing strategy as an integral element of the overall approach.

A central axis of this strategy is the concept of leverage: the initial public investment acts as a catalyst for attracting additional resources, maximizing the social, environmental, and economic impact of the interventions.

Public Investment

Public investment, particularly in Municipalities and public buildings, has a dual role. On the one hand, it covers basic needs for energy upgrading and compliance with regulatory requirements. On the other hand, it acts as a signal of confidence to the market and financial institutions, reducing perceived risk and facilitating the participation of private capital.

Within the framework of the New European Bauhaus and the European green transition, public investment also acquires a symbolic character. It demonstrates that the Municipality is taking initiative, piloting solutions, and creating the conditions for their wider dissemination. This initiative becomes particularly important for upscaling, as private and financing actors are more willing to participate in projects that have already been tested at public level.

European Programmes

European financing programmes constitute the first and often most decisive pillar for supporting upscaling. Instruments such as the Recovery and Resilience Facility, cohesion programmes, and initiatives for energy transition and urban regeneration provide significant resources for projects that combine energy efficiency, social impact, and innovation.

The use of European programmes at scale does not only concern the coverage of intervention costs, but also the institutional maturation of projects. The requirements of European instruments — planning, documentation, performance indicators — contribute to the creation of mature investment plans, which can then be strengthened through additional sources of financing.

At upscaling level, European programmes ideally function as anchor funding, meaning a basic financing foundation onto which national or private capital can be added. Particularly for interventions linked to the principles of the NEB, European financing offers not only resources, but also institutional recognition.

National Financing Instruments and Complementarity

National financing instruments constitute the second important pillar, operating complementarily to European programmes. National-scale programmes, specific calls for public buildings, or mechanisms supporting energy efficiency can cover financing gaps and facilitate the gradual implementation of projects.

The importance of national instruments is particularly strengthened in upscaling, as they allow greater flexibility and adaptation to the specific characteristics of each Municipality. While European programmes often follow strict timelines and specific priorities, national instruments can function as a bridge between different phases or support interventions that do not immediately fall within European calls.

At strategic level, the combined use of European and national resources increases the resilience of the financing scheme and reduces dependence on a single source.

Lending through Development Banks

The third financing axis concerns lending through development banks and institutional financial organizations. Unlike traditional bank financing, development banks focus on projects with a clear social and environmental footprint and offer more favorable lending terms.

For the upscaling of interventions, this type of lending can act as a catalyst, particularly when combined with grants or guarantees from public bodies. In this way, the Municipality gains access to additional resources without placing excessive pressure on its budget, while retaining control of the project.

However, the use of lending within a strategic framework requires mature planning and a clear assessment of financial flows. Within the Upscaling Plan, lending is not proposed as a stand-alone solution, but as part of a financing mix, in which public grants reduce risk and lending accelerates implementation.

Partnerships with the Private Sector

Partnerships with the private sector constitute the fourth and most dynamic financing pillar. Models such as Energy Performance Contracts (ESCO) or Public-Private Partnerships (PPPs) enable the implementation of projects without high initial public expenditure, transferring part of the risk and financing to the private actor.

Within the context of upscaling, these partnerships acquire particular importance, as they can be applied to groups of buildings or portfolios, achieving significant economies of scale. At the same time, they encourage innovation, as private actors have an incentive to propose more efficient solutions.

However, the strategic choice of partnerships must be accompanied by clear governance and transparent terms, in order to safeguard the public interest and ensure alignment with the values of the NEB.

3.6 Governance and the Political Dimension of Upscaling

The upscaling of energy upgrade interventions from individual applications to broader systems is not a neutral or exclusively technical process. On the contrary, it constitutes a deeply political act,

as it involves strategic decision-making, the prioritisation of public resources, the shaping of policy priorities, and the management of social expectations. The transition from a “pilot project” to a “policy at scale” requires clear political will, institutional consistency, and the ability to communicate a convincing narrative to citizens.

In this context, the governance of upscaling cannot be limited to administrative functions or project management. It includes the full range of mechanisms through which the Municipality shapes, implements, and monitors its sustainable development strategy. Upscaling thus becomes a means of giving political meaning to the green transition, connecting technical effectiveness with democratic legitimacy.

A key prerequisite for successful upscaling is explicit political commitment. Unlike pilot interventions, which are often implemented within a limited time horizon, upscaling requires a long-term strategy and institutional continuity. This means that interventions must be integrated into official municipal plans, sustainable development strategies, and operational programmes, so that they do not depend solely on individuals or circumstances.

Political commitment does not concern only the approval of a project, but its systematic support over time. It involves securing resources, supporting administrative mechanisms, and the clear assumption of responsibility by political leadership. At this level, the governance of upscaling functions as an indicator of the Municipality’s institutional maturity.

One of the most important characteristics of upscaling is its potential to function as a tool for the political legitimisation of the green transition. In many cases, citizens perceive the energy transition as something abstract, technical, or even burdensome. The systematic and scaled implementation of interventions in public buildings and spaces transforms the green transition from an abstract policy into a tangible experience.

When energy interventions are visible, understandable, and integrated into citizens’ everyday lives, they acquire political value. The Municipality is not presented merely as a regulator or manager, but as an active agent of change investing in the common good. In this way, upscaling strengthens citizens’ trust and creates social acceptance for further actions.

Upscaling introduces increased complexity into governance, as it requires the coordination of multiple levels and actors. In addition to municipal services and political leadership, regional

bodies, financing organisations, private partners, and local communities are often involved. Effective governance requires clear roles, cooperation mechanisms, and transparent decision-making procedures.

The challenge lies not only in the number of stakeholders involved, but also in the diversity of their interests and priorities. The political dimension of upscaling lies precisely in the Municipality's ability to harmonise technical, economic, and social objectives, shaping a common framework for action.

Effective governance of upscaling requires clear and consistent communication with citizens. Upscaling cannot be imposed "from above"; it requires social understanding and acceptance. Active information-sharing, transparency regarding objectives and results, and opportunities for citizen participation strengthen the democratic dimension of the green transition.

Within the framework of the New European Bauhaus, communication is not merely a publicity tool, but an integral element of the political process. Projects must "speak" to citizens, explaining how and why they are implemented and what benefits they generate. Upscaling is strengthened when citizens feel that they are participating in a collective effort, rather than acting as passive recipients of decisions.

The political dimension of upscaling becomes particularly evident when interventions are integrated into long-term sustainable development strategies. The upgrading of public buildings is not an end in itself, but part of a broader vision for the city. Governance must ensure that interventions are linked to objectives such as social cohesion, climate resilience, and the qualitative upgrading of public space.

Upscaling acquires a strategic character when it is embedded in spatial plans, energy plans, and public-space policies. In this way, individual interventions form a coherent political narrative that goes beyond each individual project cycle.

An often underestimated element of the political dimension of upscaling is institutional learning. Through the repeated implementation of interventions at increasing scale, the Municipality gains experience, improves its procedures, and strengthens its capacity to manage complex projects. Upscaling therefore functions as a mechanism for strengthening local governance.

Institutional learning does not concern only technical skills, but also political practices: better consultation, more effective communication, and smarter use of resources. At this level, upscaling becomes an investment in the administrative capacity and democratic functioning of the Municipality.

The political dimension of upscaling also involves risks. Excessive expectations, inadequate communication, or delays can undermine citizens' trust. The governance of upscaling requires realism, gradual implementation, and continuous reassessment of objectives and means.

Success is not measured only in numbers or timelines, but in the Municipality's ability to maintain a stable narrative of progress, even when facing difficulties. Political maturity lies precisely in the management of this complexity.

4. Overall Conclusion

The analysis of replication and upscaling possibilities demonstrates that the proposed approach is not an isolated project, but a transferable model. Through the use of standardised tools, a clear methodology, and alignment with the principles of the New European Bauhaus, Municipalities can move from pilot interventions to large-scale systemic change, creating long-term value for local communities.

Governance and the political dimension of upscaling constitute the core of the long-term success of the green transition at local level. Upscaling is not merely the expansion of technical solutions, but a transformation of the relationship between the Municipality, citizens, and public space. Through clear political commitment, institutional continuity, and participatory governance, Municipalities can transform energy projects into powerful tools of political legitimisation, social cohesion, and a sustainable future, in full alignment with the principles of the New European Bauhaus.

Annexes / Replication Templates

TEMPLATE 1 – Standardised Building Baseline Assessment Form

Purpose:
To ensure a minimum level of comparable data before any energy or Bauhaus intervention.

SECTION A – General Information

- Municipality:
- Building Name:
- Address:
- Year of construction:
- Building use:
- Total floor area (m^2):

SECTION B – Architectural & Construction Data

- Geometry — floors, layout / brief description:
- Orientation:
- Main envelope materials:
- Shading / natural lighting:

SECTION C – Energy Data — Three-Year Period

- Electricity consumption — kWh/year:
- Heating consumption — kWh/year:
- Energy source:
- Operational profile — hours/day:

SECTION D – Technical Condition of the Envelope & M&E Systems

- Thermal insulation:
- Window and door frames:
- Heating system:
- Cooling system:
- Lighting:
- Year of last upgrade:

SECTION E – Social & Functional Data

- Number of employees:
- Average number of visitors:
- Thermal comfort issues:
- Accessibility issues:

SECTION F – Energy Audit & nZEB

- Date of audit:
- Energy class:
- Climatic zone:
- Main deviations from nZEB requirements:

☑ **Replication Rule:**
Completion of this template is a mandatory prerequisite for moving on to **Step 2 — Development of Intervention Packages**.

TEMPLATE 2 – Development of Intervention Packages

Purpose:
To transform scattered technical solutions into comparable scenarios.

Step 1 – Package Definition

- Package name:
- Scale — building / complex:
- Objective — nZEB / NEB / pilot:

Step 2 – Description of Interventions

- Envelope:
- M&E systems:
- RES:
- Digital systems:
- Biophilic and human-centred interventions:

Step 3 – Key Figures

- Estimated cost (€):
- Estimated savings (%):
- CO_2 emissions — reduction:

☑ **Replication Rule:**
Each Municipality must develop at least **two packages** for comparison.

TEMPLATE 3.1 – Interdisciplinary Team Structure (NEB Team Setup)

Purpose:

To ensure that interventions are assessed beyond technical indicators and integrate the values of the NEB.

Discipline / Expertise	Role in the Project	Participation (YES/NO)
Architect	Architectural quality, spatial experience	
Civil Engineer / Urban Planner	Construction feasibility, integration into the urban context	
Energy Auditor	Performance, nZEB compliance	
Electrical / Mechanical Engineer	Lighting, BMS, RES, heating–cooling	
Landscape Architect	Biophilia, green infrastructure	

☑ **Replication Rule:**

It is recommended that at least three (3) different scientific perspectives are covered.

TEMPLATE 3.2 – Participatory Process Log

Purpose: To document that participation was meaningful and not merely symbolic.

Tool	Objective	Audience	Results
Project website	Information & comments	Citizens	
Questionnaires	User needs	Building users	
Webinars	Knowledge dissemination	Public / experts	
Newsletters	Continuous information	Stakeholders	
Exhibitions / conferences	Exchange of experience	Professionals	

☑ **Replication Rule:**
At least two different participation channels are documented.

TEMPLATE 3.3 – NEB Multi-Criteria Review per Technical Intervention

Purpose: To translate the principles of the NEB into specific design questions.

Technical Intervention:……

Question	Description	Answer
Sustainability	How is the environmental value made visible?	
Aesthetics	How is architectural quality improved?	
Inclusion	Who benefits, and how?	
Local Identity	How is it connected to the place?	
Replicability	Can it be applied elsewhere?	

☑ **Replication Rule:**
Each technical measure must pass through this filter.

TEMPLATE 3.3 – Do / Don’t Validation Checklist (per Category)

It is used before the final design selection.

A. Building Envelope

- ☐ Was the local architecture analysed and were selected elements of it used?
- ☐ Was thermal insulation used as a design tool?
- ☐ Were openings used as a design tool?
- ☐ Were standardised façades avoided?

B. M&E Systems

- ☐ Were they designed for actual use?
- ☐ Was emphasis placed on comfort?
- ☐ Do users understand how the systems operate?;
- ☐ Is it used for education?

C. Renewable Energy Sources (RES)ΑΠΕ

- ☐ Was the visibility of RES taken into account, as well as the way in which they make clean energy production understandable and acceptable in the public space?
- ☐ Were RES combined with green or natural infrastructure, such as planting, biophilic design, or microclimate management?
- ☐ Are RES integrated with architectural and aesthetic features that upgrade the image of the building and its role within the urban fabric?
- ☐ Does the RES installation contribute to improving the experience, understanding, or environmental awareness of users and citizens?
- ☐ Can this specific RES solution be applied and replicated in other public buildings or Municipalities with similar technical and economic characteristics?

D. BMS

- ☐ Were simple and understandable indicators selected?
- ☐ Is it used for education?;
- ☐ Are the data displayed publicly as a means of transparency?

E. Public & Biophilic Space

- ☐ Was the citizens' experience improved?
- ☐ Was inclusion strengthened?
- ☐ Do the waiting areas encourage social interaction?
- ☐ Is there a variety of seating options?
- ☐ Is the space welcoming and accessible for everyone?
- ☐ Are green islands / routes created?
- ☐ Is there a three-dimensional planting composition?
- ☐ Were resilient and suitable species selected?

☑ **Replication Rule:**
If there are more ✗ than ☑, the measure must be redesigned.

TEMPLATE 4 – Intervention Self-Assessment Table

Purpose:
To enable the selection of interventions in cases where it is not possible to implement all proposed measures.

Intervention	Energy Benefits (1 to 5)	Social Impact (1 to 5)	Aesthetic Upgrade (1 to 5)	Cost (1 to 5)	Score / Level
No.	A	B	C	D	(A+B+C+D)/4

☑ Replication Rule: Self-assessment is useful for crystallising the real impact of the interventions.

TEMPLATE 5 – Project Timeline & Governance

Purpose:

To reduce institutional and organisational risk and to capture, in a clear, applicable, and replicable way:

- what happens and when;
- by whom;
- and under which institutional responsibility.

The template does not require project descriptions, but rather the definition of roles, decisions, and stages.

Phases

1. Preparation – Studies:

Responsible service, e.g. Municipal Technical Service:

Type of studies, e.g. energy, architectural, M&E:

Estimated duration, e.g. 3–6 months:

2. Maturation & Financing:

Funding coordination body, e.g. Planning Department:

Type of funding, indicatively: national programme, European programme, mixed scheme:

Link with previous studies, yes/no:

3. Tenders:

Competent service, e.g. Financial Service:

Type of procedure, e.g. open tender:

Estimated timeframe:

4. Implementation:

Responsible body for technical supervision:

Whether there are multiple sub-projects, yes/no:

Estimated duration:

5. Monitoring:

Responsible body for data collection, e.g. Technical Service + BMS:

What is monitored, e.g. energy, use, comfort:

Monitoring period:

Roles

- Political Responsibility:

To be completed with:

The institutional level responsible for decision-making.

Correct examples:Mayor, Deputy Mayor for Technical Services, Municipal Council, where required

- Technical Services:

To be completed with:

The specific service or unit.

Examples:

Municipal Technical Service

Directorate of Technical Works

- Consultants:

To be completed with:

The type of consultant; naming a specific person is not necessarily required.

Examples:

Energy consultant

Project technical consultant

Sustainability / NEB consultant

- External Stakeholders:

To be completed with:

Categories of stakeholders involved.

Examples:

Works contractors

Technology providers

Funding body

☑ **Replication Rule:**

Clear political and technical responsibility is a prerequisite for success.

TEMPLATE 6 – Upscaling Toolkit – From the Building to……

Purpose:

To enable the systematic and gradual upscaling of interventions, without loss of:

- energy performance,
- architectural and aesthetic quality,
- social and NEB character.

This toolkit is a decision-making and scale-planning tool..

Section A – Scalable Unit

Defines the "building block" of upscaling, namely the type of building or infrastructure that will be replicated:

Type of Unit

A specific type should be selected, not simply a general "category".

☐ School building

☐ Town Hall / Administrative building

☐ Cultural centre

☐ Sports facility

☐ Other:……

Key Common Characteristics of the Unit — brief description:

Use:

Average floor area (m²):

Energy profile — low / medium / high:

Number of Replications

Pilot applications: …… units

Medium-term target: …… units

Long-term target: …… unitsΜακροπρόθεσμος στόχος: …… μονάδες

Section B – Financing

This section does not refer to specific programmes, but to the financing tools that may be activated at each stage of upscaling.

1. European Tools

The level is indicated, not necessarily the programme title.

☐ European investment-scale programmes

☐ Innovation / pilot-action programmes

☐ Combination of grant funding and technical assistance

Use in upscaling:

☐ Pilot phase

☐ First scale-up phase

☐ Wide-scale implementation

2. National Tools

☐ National programmes for public buildings

☐ Co-financed instruments

☐ Complementary financing

Role:

Bridge between pilot actions and permanent investments.

3. ESCO / PPP Opportunities

☐ Suitable at unit level

☐ Suitable at building-group level

☐ Further maturation is required

Section C – Partnerships

This section identifies which stakeholders can support upscaling, not who “should ideally” be involved.

To be completed:

Other Municipalities

☐ Inter-municipal cooperation

☐ Exchange of know-how

☐ Joint project maturation

Region

☐ Strategic coordination

☐ Financial support

☐ Technical suppor

Universities / Research Bodies

☐ Monitoring of results

☐ Innovation and evaluation

☐ Training and dissemination

Private Sector

☐ Technology providers

☐ Construction actors

☐ Energy actors

☑ **Upscaling Rule:**

Upscaling must be carried out in groups, not in a fragmented manner.