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THE SMART READY COMMUNITY (SRC)

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D5.4 THE SMART READY COMMUNITY

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Abstract	This deliverable presents the outcomes of Task 5.4 - Smart Ready Community (SRC), which investigates how the Smart Readiness Indicator (SRI) methodology can be extended from single buildings to multi-building and community-scale configurations. The report summarises the methodological development, the SRI assessments performed for 5 pilot sites and 25 additional communities, and the resulting analysis of smart-readiness performance and potential correlations with energy indicators. The work establishes a conceptual and evolving framework for assessing and comparing smart readiness at the community level, supporting the eco-digital transition and the replication of smart-building strategies across Europe.
Keywords	Smart Readiness Indicator (SRI), Smart Ready Community (SRC), building digitalisation, energy performance, eco-digital transition, community-scale assessment, interoperability, monitoring

Authors		
Author	Institution	Contact e-mail
Antonello Magliozzi	Arcadis Italy	antonello.magliozzi@arcadis.com
Dilara Saygili	Arcadis Italy	dilara.saygili@arcadis.com
Alessandra Bessi	Arcadis Italy	alessandra.bessi@arcadis.com
Chiara Cipollone	Arcadis Italy	chiara.cipollone@arcadis.com
Simona Bovi	Arcadis Italy	simona.bovi@arcadis.com
Pedro Correa de Melo	Arcadis Italy	
Natalija Nikolic	Arcadis Italy	
Andreea Mihaela Maraniello	Arcadis Italy	
Thomas Messervey	R2M Solution Italy	thomas.messervey@r2msolution.com
Marco Pietrobon	R2M Solution Italy	marco.pietrobon@r2msolution.com

Milad Zoghi	R2M Solution Italy	milad.zoghi@r2msolution.com
Afroditi Zamanidou	IsZEB	a.zamanidou@iszeb.gr
Paris A. Fokaides	Euphyia Tech ltd	paris@euphyia-tech.com
Nicholas Afxentiou	Euphyia Tech ltd	nicholas@euphyia-tech.com

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EXECUTIVE SUMMARY

This deliverable presents the outcomes of **Task 5.4 - Smart Ready Community (SRC)** under the *Smart²* – *Smart Tools for Smart Buildings* project, funded by the LIFE-2021-CET-SMARTREADY program (Grant Agreement No. 101077241).

The work explores how the Smart Readiness Indicator (SRI) methodology, originally designed for single buildings, can be extended to groups of buildings or functional units forming an integrated Smart Ready Community.

Task 5.4 represents a conceptual and evolving framework, developed to test and demonstrate the feasibility of assessing smart readiness at community level.

The work does not constitute a final or exhaustive application but rather establishes a methodological foundation for future use and replication.

The outcomes contribute to understanding how digitalization, automation, and shared infrastructures can enhance energy efficiency, comfort, and operational intelligence at the scale of campuses, complexes, and urban districts.

Two complementary methodologies were developed and applied:

- **Methodology 1 – Multi-assessment weighted average**, in which each functional unit or building is assessed separately and combined through an area-weighted community score.
- **Methodology 2 – Single integrated assessment**, in which one SRI evaluation represents the entire community, with internal areas modelled by percentage weighting.

Both methods were tested in 5 pilot Smart Ready Communities across Italy, Greece, and Cyprus, representing office, industrial, sports, educational, and urban-regeneration contexts.

Subsequently, the framework was applied to 25 additional planned communities across Europe, expanding the typology coverage to commercial centers, logistics hubs, hotels, hospitals, and residential facilities.

Together, these 30 assessments demonstrate that the SRI can be scaled to a variety of spatial and functional configurations.

The study highlights that the Smart Ready Community approach provides significant added value beyond single-building assessment, by:

- enabling evaluation of shared systems and collective energy management,
- supporting coordinated investment and planning decisions,
- fostering interoperability and standardization of digital infrastructures, and
- establishing a common digital baseline for communities and districts.

In addition to technical benefits, the SRC concept offers financial and societal advantages.

Shared investments in digital and energy systems can reduce costs and operational risks, while aggregated improvements strengthen eligibility for financial incentives and sustainability-linked funding. At the same time, community-level digitalization can improve energy efficiency, comfort, and resilience, and increase property and district value by creating coherent, smart, and sustainable neighborhoods.

From a policy perspective, the Smart Ready Community framework supports Europe's eco-digital transition, combining the objectives of energy efficiency, decarbonization, and digital innovation. It provides a scalable tool for assessing and promoting smart and connected districts, helping local authorities, owners, and operators to plan targeted upgrades and track progress toward the EU's climate and digital goals.

As part of the replication phase, it has been also initiated the first steps toward performance monitoring, by proposing future tracking of key performance indicators (KPIs) related to energy use, comfort, and digital operation in selected communities. This initiative aims to link SRI results with real operational behaviour and will support future validation of the Smart Ready Community framework through data-driven analysis.

Finally, the report acknowledges that this work is an initial step in a longer process. Future research and implementation activities are encouraged to refine the methodology, integrate real monitoring data, and develop benchmarks and indicators for ongoing evaluation. The Smart Ready Community approach thus serves as both a conceptual model and a practical instrument for guiding the digital transformation of Europe's building stock toward smarter, more efficient, and more connected communities.

1. INTRODUCTION

1.1. Background

The Smart Square project, Smart Tools for Smart Buildings: Enhancing the Intelligence of Buildings in Europe, is funded under the LIFE-2021-CET-SMARTREADY call.

The project supports the implementation and market uptake of the Smart Readiness Indicator (SRI) as introduced in the recast Energy Performance of Buildings Directive (EPBD).

Its overarching goal is to demonstrate how the SRI can be applied across different European contexts, tools, and building typologies, and to create practical methodologies that encourage digitalisation, interoperability, and user-centred energy management.

The methodology applied to the assessments is aligned with the CEN Workshop Agreement CWA 18193:2025, "Standardized On-site Audits of Smart Readiness Indicator (SRI) for Buildings," which was approved by ASRO as Secretariat of CEN/TC 247.

1.2. Role of Task 5.4 within the project

Within Smart Square, Work Package 5 focuses on demonstration and validation activities.

Task 5.4 – Smart Ready Community investigates how the Smart Readiness Indicator (SRI) methodology can be scaled from single buildings to multi-building complexes or multi-functional sites, creating what the project defines as Smart Ready Communities (SRCs).

The task also explores how SRI assessments can be combined with operational monitoring to provide a more holistic picture of smartness, energy performance, and occupant well-being.

The work carried out under Task 5.4 represents a conceptual and evolving framework, forming the foundation for further application and data-driven validation of the Smart Ready Community methodology beyond the Smart² project.

The specific objectives of Task 5.4 are to:

- Demonstrate the feasibility of applying the SRI framework to groups of buildings or functional units.
- Develop and validate calculation methodologies suitable for community-level assessment.
- Establish a connection between the SRI assessment results and the actual operational performance of buildings and communities, enabling comparison between evaluated smart-readiness levels and real performance indicators.
- Describe and analyze the relationship between smart readiness, energy performance, and building digitalization within the community context.

1.3. Objectives and scope of the report

This report summarizes the activities, methodologies, and findings of Task 5.4 – Smart Ready Community within the Smart² project.

It documents the development and demonstration of the Smart Ready Community (SRC) framework, the application of the Smart Readiness Indicator (SRI) to five pilot sites, and the replication of the approach to twenty-five additional communities.

The work presented in this deliverable represents a conceptual and evolving framework, providing the foundation for further application and monitoring-based validation.

The scope of the report includes:

- Definition of the Smart Ready Community concept and typologies;
- Description of the two SRI methodologies developed for community-level assessment;
- Presentation of the five pilot case studies and their respective SRI outcomes;
- Analysis of twenty-five additional planned community assessments;
- Comparison of SRI results with EPC ratings and energy-consumption data; and
- Synthesis of key lessons and recommendations to support replication and policy alignment.

1.4. Structure of the report

The report is organized as follows:

- **Chapter 2** introduces the Smart Ready Community concept, typologies, and its role within the Smart² project.
- **Chapter 3** presents the methodological framework, describing the two SRI calculation approaches (Methodology 1 and Methodology 2).
- **Chapters 4 and 5** provide pilot and planned community assessments, summarizing the outcomes for each site.
- **Chapter 6** analyses the correlation between SRI, EPC, and energy performance.
- **Chapter 7** summarizes the cross-comparative findings, lessons learned, and benchmarking results.
- **Chapter 8** concludes with the main takeaways, recommendations, and perspectives for replication.

Detailed **SRI audit reports** for each pilot and planned community assessment are provided in **Annexes A, B, C, D, E, and F**.

2. SMART READY COMMUNITY CONCEPT AND TYPOLOGIES

2.1. Definition and Purpose

A Smart Ready Community (SRC) is defined within the Smart Square project as a group of buildings or functional areas that interact through shared digital, energy, and control infrastructures to optimize sustainability, comfort, and operational efficiency.

The concept extends the Smart Readiness Indicator, originally developed for single buildings, to a wider, community-level scale, enabling the assessment of how multiple buildings collectively:

- optimize energy use and flexibility,
- adapt their operation to occupants' needs,
- communicate with the grid and other external services, and
- share information and data through integrated digital systems.

Applying the SRI at community level supports the creation of districts and campuses that are "smart by design", helping planners, developers, and operators identify synergies between buildings, detect performance gaps, and plan targeted upgrades.

2.2. Scope and Typologies of Smart Ready Communities

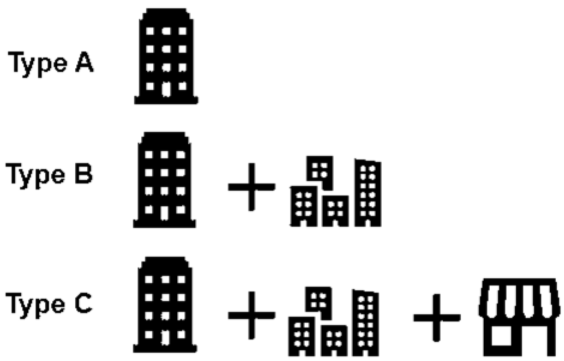


Figure 1. *Smart Ready Community Typologies*

A **Smart Ready Community (SRC)** can represent a wide range of spatial and functional configurations, depending on the number of buildings or units involved and the way they interact through energy, digital, and management infrastructures.

Within the Smart Square project, three principal typologies are defined to describe these possible configurations, from individual multi-unit buildings to district-level communities. This typology ensures that the SRI methodology can be consistently applied across different scales and contexts.

Table 1. Smart Ready Community Typology Descriptions

Type	Description	Typical Configuration
Type A Multi-unit community within one building	Two or more functional units located within the same building envelope. Systems may be independent or partially shared. Separate SRI assessments are carried out and combined through a weighted average.	Mixed-use buildings, composed of offices, retail areas, and shared zones, or residential units as an example.
Type B Multi-building complex or campus	Several buildings located within the same site or managed under a common operational framework. They can have similar or different functions and may operate through shared or independent systems but are considered collectively as one community for assessment purposes.	Business, educational, or industrial campuses; sports or healthcare complexes.
Type C Urban-scale community or district	A group of buildings and public infrastructures assessed as a whole, integrating smart technologies, renewable generation, and digital coordination at the district or neighbourhood scale.	Urban block or regeneration area designed for coordinated smart operation.

This typology provides a flexible and scalable framework applicable to both constructed and design-phase environments, enabling consistent assessment of smart readiness across multiple spatial and functional scales.

2.3. Added Value of the SRC Approach

Applying the SRI at community scale provides several benefits:

- **Comprehensive perspective**: Captures interactions among multiple buildings and infrastructures.
- **Interoperability assessment**: Evaluates integration between different Building Management Systems (BMS) and digital platforms.
- **Energy coordination**: Considers shared generation, storage, and electric-mobility assets.
- **User-centered management**: Accounts for comfort, accessibility, and information across communal spaces.
- **Replicability**: Establishes a framework that can be transferred to other sites or cities.

2.4. Link to the Smart-Ready-Go! Platform

All assessments were carried out using the Smart-Ready-Go! platform, aligned with the official European Commission SRI framework. The tool supports both single-building and community-scale evaluations, allows area-weighted aggregation, and ensures comparability of results across all demonstration and replication cases.

3. AUDIT EXECUTION - RESULTS AND INTERPRETATION

3.1. Overview of the SRI Assessment Approach

The methodological work carried out within Task 5.4 aimed to adapt the Smart Readiness Indicator (SRI) methodology to the community scale.

The assessments were performed using the Smart-Ready-Go! platform, which implements the official European Commission SRI calculation logic and provides a transparent, comparable framework for all demonstrators.

Each assessment followed the same general process:

1. **Data collection** on building characteristics, systems, and controls through documentation, interviews, and on-site inspections (or design documentation for projects not yet constructed).
2. **Definition of functional units or buildings** forming the community boundary.
3. **Input of information into the Smart-Ready-Go! tool**, selecting the appropriate functionality levels for each technical domain.
4. **Calculation of SRI scores** per technical domain, per key functionality, and per impact criterion.
5. **Aggregation of results** into a single community-level indicator using one of the two developed methodologies.

The overall objective was to ensure a consistent and reproducible approach across different contexts, single large buildings, multi-building complexes, and urban communities.

3.2. Methodology 1: Multi-assessment Weighted Average

This approach is used when a community consists of several distinct functional units or buildings, each assessed separately.

Every unit receives its own SRI evaluation, and the community score is calculated by combining these results through a weighted average based on the effective area of each unit.

Equation 1. *Weighted community SRI calculation*

$$\mathrm{SRI}_{\mathrm{community}} = \frac{\sum_{u=1}^{n} A_u^{\mathrm{eff}} \times \mathrm{SRI}_u}{\sum_{u=1}^{n} A_u^{\mathrm{eff}}}$$

- A_u^{eff} = effective area (m^2) of unit *u*,
- SRI_u= total SRI score (%) for that unit,
- *n* = number of functional units included in the community.

The same area weighting can be applied as well as for key functionalities, impact criteria, and technical domains.

This method is suitable for Type A, Type B, and Type C communities, where units, buildings, or districts operate with different systems or control strategies and individual assessments are necessary to capture variations in smartness.

The advantage of Method 1 is its granularity: it allows comparison among sub-units and supports targeted improvement strategies within the same community.

3.3. Methodology 2: Single Integrated Assessment with Area Weighting

When a community or building contains several functional areas but can be represented under one common assessment framework, a single SRI evaluation can be performed using area-based weighting inside the Smart-Ready-Go! platform.

For each technical service:

- The assessor defines the percentage share of the total area corresponding to each functional zone (e.g., offices 60 %, cafeteria 25 %, common areas 15 %).
- Each zone's functionality level is selected according to its technical characteristics.
- The Smart-Ready-Go! tool automatically calculates an area-weighted SRI result for the whole building or community.

This method is particularly efficient for buildings with similar systems and integrated control logic. It simplifies data entry while still reflecting the diversity of functions within the same envelope.

The advantage of Method 2 is its efficiency and simplicity, producing one consolidated SRI report while maintaining internal differentiation through area percentages.

3.4. Comparison of the Two Methodologies

Table 2. *Comparison of Methodologies*

Aspect	Methodology 1: Multi-assessment Weighted Average	Methodology 2: Single Integrated Assessment
Approach	Separate SRI assessments for each unit or building; results aggregated afterwards by weighted average.	One integrated SRI assessment using area-based weighting inside Smart-Ready-Go!.
Typical use case	Communities with independent systems or heterogeneous functionalities.	Communities or buildings with similar systems and shared controls.
Number of SRI reports	Several (one per unit + community synthesis).	One consolidated report.
Weighting factor	Effective area (m^2) per unit.	Percentage area per functional zone.
Level of detail	High; allows comparison between units and targeted analysis.	Moderate; produces one overall score.
Main advantage	Highlights differences between systems; supports detailed upgrade strategies.	Simplifies assessment for integrated buildings; efficient data management.

Both methodologies are fully compatible with the Smart-Ready-Go! platform and aligned with the official SRI calculation structure.

Their combined use ensures that the Smart Ready Community framework remains flexible enough to address the diversity of European building stocks and management models.

3.5. Application to Design-Phase and Constructed Projects

The methodologies developed in Task 5.4 can be applied to both constructed and design-phase communities.

When used in design, the SRI assessment relies on architectural and engineering specifications rather than operational data, allowing early identification of smart features and optimisation opportunities.

This approach supports the Smart-by-Design principle promoted by the Smart Square project, ensuring that future communities are prepared for digitalisation and energy flexibility from the outset.

4. AUDIT EXECUTION – RESULTS AND INTERPRETATION

4.1. Overview

The demonstration phase of Task 5.4 focused on testing and validating the Smart Ready Community concept in real and design-phase contexts through 5 pilot sites located in Italy, Greece, and Cyprus. These pilots represent a wide range of typologies, system configurations, and project stages, demonstrating how the SRI can be applied to assess and compare communities at different scales.

The pilots were selected to cover:

- **Different functional configurations**, from single multi-unit buildings to multi-building campuses and urban areas.
- **Different levels of system integration**, including both shared and independent Building Management Systems (BMS).
- **Different project phases**, encompassing existing operational buildings and design-phase developments.
- **Different SRI methodologies**, ensuring that both Methodology 1 (multi-assessment weighted average) and Methodology 2 (single integrated assessment) were validated in practice.

4.2. Objectives of the Demonstration Phase

The pilot studies were conducted to:

- Demonstrate the feasibility and adaptability of the Smart Ready Community approach.
- Test both methodologies in operational and design contexts.
- Analyze how individual buildings or functional areas contribute to a collective community score.
- Identify strengths, weaknesses, and areas for improvement in each case.
- Generate practical recommendations for replication and large-scale deployment.

Each pilot underwent a detailed Smart Readiness Audit performed in accordance with the SRI methodology, using the Smart-Ready-Go! tool.

For each case, the audit produced:

- an overall SRI score and class,
- results per key functionality, impact criterion, and technical domain,
- and a community-level SRI score representing the aggregated smartness of the site.

4.3. Structure of the Pilot Presentations

Each of the following subsections (4.5 - 4.9) presents one pilot Smart Ready Community using a consistent structure:

1. **General description of the site**: location, function, main systems, and community typology.
2. **Methodology applied**: Method 1 or Method 2, including relevant weighting details.
3. **Summary of SRI results**: total score, class, and main domain-level outcomes.

4. **Key observations**: strengths, weaknesses, and potential improvements.
5. **Cross reference**: to the full Smart Readiness Audit Report provided in **Annex A, B, C, D and E**.

4.4. List of Pilot Smart Ready Communities

Table 3. *Pilot Projects List*

Pilot No.	Project/Site	Country	Typology	Methodology	Project Phase
1	Monte Rosa 91 Complex	Italy	Type A	Method 1	Constructed
2	La Forgiatura Campus	Italy	Type B	Method 1	Constructed
3	PAOK FC Training Center	Greece	Type B	Method 1	Constructed
4	Loreto Open Community (LOC)	Italy	Type C	Method 1	Design Phase
5	Frederick University – New Wing	Cyprus	Type A	Method 2	Constructed

These five cases collectively demonstrate how the Smart Ready Community approach can be applied across different contexts, showing both the methodological flexibility and the analytical potential of the SRI at community scale.

4.5. Monte Rosa 91 Complex (Italy)

4.5.1. General Description

Pilot Project:	Monte Rosa 91
Location:	Via Monte Rosa n.91
Climate Zone (Koppen):	E
Construction Year:	2023 (refurbished)
Floor Area (m2):	53,696
Building type:	Multitenant - Mixed use
HVAC system typology:	Electrical heating and cooling unit
Lighting system typology:	LED
EPC Class:	B
Yearly Energy Consumption (kWh/m2/year)	148.96
Technical Partner - Assessor	Arcadis Italy

The Monte Rosa 91 Complex is a large multi-functional office campus located in Milan, Italy. Originally built in the late 1990s and comprehensively refurbished in 2023, the site offers a variety of uses including offices, retail areas, a restaurant, a nursery, and shared amenities.

The building is the first redeveloped real estate in Italy that obtained the Wired Score Platinum certification for the high degree of digital connectivity. The project also provides for the achievement of LEED Core & Shell Platinum level certification, regarding energy and climate efficiency, and LEED Ebom Gold, for the efficacy of the building in terms of operations.

The community consists of several interconnected zones with distinct operational characteristics:

- **Offices** represent the main functional area.
- **Common areas**, such as meeting rooms, corridors, auditorium, and shared facilities.
- **Tenant/Retail areas**, including a gym, shops, nursery, and restaurant.

The building is equipped with a central HVAC production plant serving multiple units, an advanced Building Management System (BMS) for the common and technical zones, and individual control systems for tenant areas. This configuration makes Monte Rosa 91 a representative **Type-A Smart Ready Community (multi-unit building)** under the Smart Square typology.

4.5.2. Methodology Applied

Monte Rosa 91, which is a **Type-A** Smart Ready Community, was assessed using **Methodology 1 - Multi-assessment Weighted Average**.

Three independent SRI assessments were carried out for the following units:

1. **Offices**
2. **Tenant/Retail Areas**
3. **Common Areas**

Each unit's SRI was calculated individually using the Smart-Ready-Go! platform. The overall community score was then obtained using the weighted-average formula based on the effective area of each unit:

Equation 2. *Weighted community SRI calculation.*

$$\mathrm{SRI}_{\mathrm{community}} = \frac{\sum(A_u^{\mathrm{eff}} \times \mathrm{SRI}_u)}{\sum A_u^{\mathrm{eff}}}$$

Table 4. *Monte Rosa 91 Functional Units Results*

Functional Unit	Effective Area (m^2)	Individual SRI (%)	SRI Class
Offices	28186	50.17	**D**
Tenants/Retails	4558	52.65	**D**
Common Areas	4840	75.55	**C**

Community SRI = 53.7 % (Class D)

This result reflects a balanced level of smartness, with significant differences between units due to their distinct control strategies and system integration levels.

4.5.3. Summary of SRI Results

The Monte Rosa 91 complex presents a well-structured Smart Ready Community, combining three distinct functional areas which are offices, common spaces, and tenant/retail areas, each contributing differently to the overall smartness level.

The offices form the largest part of the complex and achieve a solid level of performance, particularly in the domains of lighting, ventilation, and comfort. The high automation degree and zonal environmental control systems support efficient daily operation and a comfortable indoor climate. Nevertheless, the offices still have improvement potential in flexibility and predictive management, as most control strategies remain schedule-based rather than adaptive.

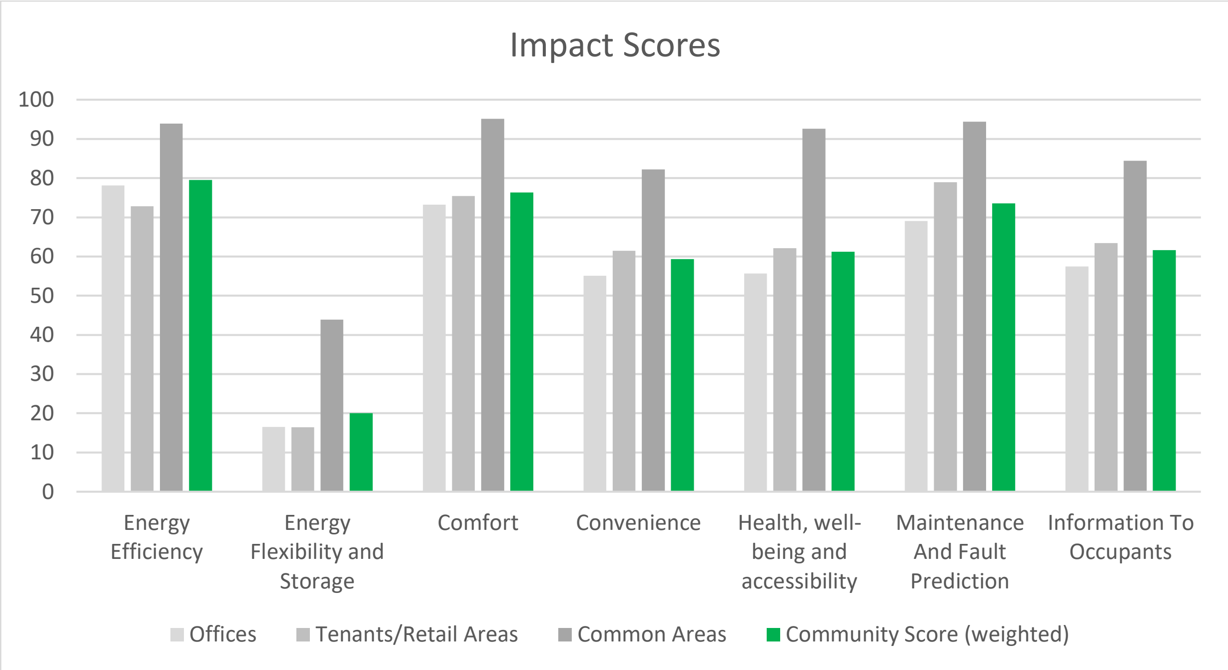
The common areas represent the most advanced part of the building from a smart-readiness perspective. The central BMS supervises HVAC production, lighting, and monitoring functions across these spaces, enabling real-time optimization and fault detection. This strong digital integration explains the high SRI results in energy efficiency, comfort, and maintenance-related functionalities.

The tenant and service areas perform acceptably but remain less integrated into the building-wide control environment. While local automation ensures adequate comfort and convenience, the absence of full BMS connectivity and interoperability with central systems reduces the overall smart coordination of the site.

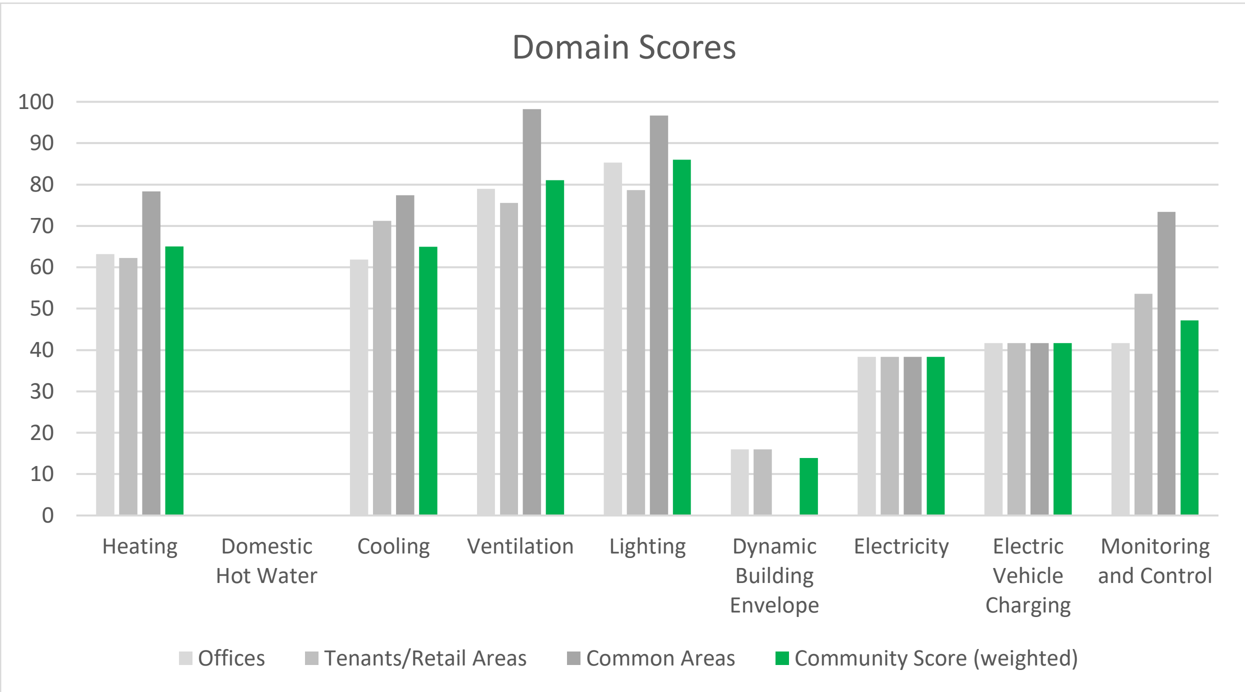
Across the community, energy-flexibility functions remain underdeveloped. The absence of active demand-response control, on-site storage, and dynamic EV-charging management limits the potential interaction with external energy signals. Introducing these features would provide significant improvement potential for future upgrades.

Dynamic-envelope and user-information functionalities are still limited to manual shading and static communication tools. Implementing automated shading, adaptive lighting, and occupant-feedback interfaces would enhance user interaction and overall building responsiveness.

In summary, Monte Rosa 91 demonstrates strong smart capabilities in shared systems and energy efficiency but shows heterogeneous performance across functional units.



Graph 1. *Monte Rosa 91 complex building impact scores comparison.*



Graph 2. *Monte Rosa 91 complex building domain scores comparison.*

4.5.4. Improvement Scenario

In addition to the baseline assessment, a Smart Readiness improvement scenario was modelled for the Monte Rosa 91 complex.

The scenario considered the **implementation of electrical battery storage and demand-side management (DSM) control**, aiming to enhance the site's energy-flexibility and overall automation level. The results represent a predicted post-improvement condition generated within the Smart-Ready-Go! platform and do not reflect the current operational state.

Table 5. *Monte Rosa 91 Functional Unit Results of Improvement Scenarios*

Functional Unit	Individual SRI after upgrade proposal (%)	SRI Class after upgrade proposal	Effective area weight (%)	Weighted contribution (%)
Offices	69.04	**C**	74.99	51.78
Tenants/Retails	72.29	**C**	12.88	11.79
Common Areas	91.56	**A**	12.13	8.77

Community SRI after upgrade proposal = 72.33 % (Class C)

Under this improvement scenario, the **community-level SRI increases from 53.7% (Class D) to 72.3% (Class C)**, demonstrating the strong potential effect of integrating DSM logic and on-site storage across all functional units.

The common areas, already managed by the central BMS, show the highest relative smart-readiness, while the tenant and office zones benefit significantly from improved coordination and predictive control. Overall, the scenario highlights that implementing energy-flexibility mechanisms and advanced control functions can substantially enhance the smart-readiness performance of a large multi-use building complex.

Conducting separate SRI assessments for each functional unit (offices, common areas, and tenant/retail areas) proved particularly beneficial for defining targeted improvement strategies. This approach made it possible to pinpoint the specific domains and systems that most influence the overall community performance.

By analysing each unit independently, the assessment provided clear priorities for digital upgrades, such as extending BMS connectivity to tenant areas or refining control strategies in office zones, which directly support a higher aggregated SRI score at community level.

*Note: Further details on the complete Smart Readiness assessment, including domain-level results and improvement scenario, are available in the Monte Rosa 91 Audit Reports (Offices, Common Areas, and Tenants) provided in **Annex A.1, A.2 and A.3.***

4.6. La Forgiatura Campus (Italy)

4.6.1. General Description

Pilot Project:	La Forgiatura Campus
Location:	Via Varesina, Milan, Italy
Climate Zone (Koppen):	E
Construction Year:	2009-2013 (redevelopment)
Floor Area (m2):	Approximately 300,000
Building type:	Multi-building business park
HVAC system typology:	Air–water system with heat pumps, AI-based control
Lighting system typology:	LED
Technical Partner - Assessor	R2M Solution Italy

The La Forgiatura Campus is a redeveloped industrial area located in Milan, transformed into a sustainable business and innovation hub. The site hosts 11 buildings with different functions, mainly offices and a restaurant, sharing a common architectural identity and advanced digital infrastructure.

The site combines architectural restoration with advanced energy systems and digital control technologies. Each building is equipped with HVAC and lighting systems that are continuously optimized through an AI-based BMS known as BrainBox AI. This system uses predictive algorithms to manage setpoints and reduce energy consumption in real time.

The Tempra building, which underwent the complete SRI audit and reporting, serves as the reference case to represent the building typology, system configuration, and digital integration level of the wider campus. All other 10 buildings' SRI assessments are also analysed separately and presented the results and main properties in ***Annex B.2.***

This configuration classifies La Forgiatura as a **Type B Smart Ready Community** (multi-building complex) within the Smart Ready Community typology.

4.6.2. Methodology Applied

La Forgiatura Campus was assessed using **Methodology 1 - Multi-assessment Weighted Average**.

Each building was analysed as an independent functional unit. The SRI for the entire campus was then calculated by combining the results of all eleven buildings through the weighted-average formula based on the effective (heated) floor area of each building.

This method allows the assessment to reflect the contribution of each building to the total community performance, recognising the variability of system integration across the campus.

4.6.3. Summary of SRI Results

The La Forgiatura Campus demonstrates a moderate level of smart readiness, with an overall community SRI of 40.02% (Class E) obtained from the weighted average of eleven buildings.

The results reveal notable differences between buildings, primarily due to the varying levels of system modernisation and control integration achieved during the site's redevelopment.

The table below summarises the main results of the assessment, including the effective (heated) area, individual SRI scores, and weighted contribution of each building to the overall community score.

Table 6. *La Forgiatura Campus SRI Results*

Building No.	Project Name	Building Typology	Effective (Heated) area of buildings (m2)	SRI Score	SRI Class	Weighted contribution (%)
1	Tempra	Office	1698.37	**34.74%**	**F**	**3.01%**
2	Forgia sud	Office	1426.53	**41.54%**	**E**	**3.03%**
3	Forgia nord	Office	1264.41		**E**	**2.68%**
4	Serra	Office	856.42	**41.59%**	**E**	**1.82%**
5	La Tecnica	Office	802.95	**41.54%**	**E**	**1.70%**
6	Lee Wrangler	Office	545.58	**40.51%**	**E**	**1.13%**
7	Meccanica	Office	950.87	**41.78%**	**E**	**2.03%**
8	La Botte	Office	580.11	**42.80%**	**E**	**1.27%**
9	Bar/restaurant	Restaurant	82.03	**41.54%**	**E**	**0.17%**
10	Palazza uffici	Office	2976.66	**41.54%**	**E**	**6.31%**
11	Raimondi	Office	8403.84	**39.33%**	**F**	**16.87%**

Community SRI = 40.02 % (Class E)

The Tempra building, used as the representative reference, obtained the lowest individual score (34.74%), while several buildings such as *La Botte* and *Meccanica* exceeded 42%, reflecting higher levels of automation and monitoring functionality.

The Raimondi building, representing the largest area of the campus, achieved a moderate score of 39.33% but had a strong influence on the total community average due to its significant floor area share. The overall outcome (Class E) indicates that, although many systems already include automation and local control, there is still limited integration and interoperability between buildings.

At domain and impact level, Energy Efficiency, Comfort, and Maintenance and Fault Prediction achieved the highest values across the campus, driven by the AI-based operation of HVAC and lighting systems in several units.

The Energy Flexibility and Storage and Dynamic Building Envelope domains recorded the lowest scores, showing that the site still lacks mechanisms for active interaction with external energy networks and adaptive façade control.

Table 7. *La Forgiatura Campus Impact Scores*

Impact Criterion	SRI Values (%)										
	Tempra	Forgia sud	Forgia nord	Serra	La Tecnica	Lee Wrangler	Meccanica	La Botte	Bar/ restaurant	Palazza uffici	Raimondi
Energy Efficiency	48.9	63.3	63.3	63.6	63.3	61.1	62.4	64.1	63.3	63.3	59.0
Energy Flexibility and Storage	15.5	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.7	21.8
Comfort	49.2	64.6	64.6	64.6	64.6	61.4	64.6	69.6	64.6	64.6	58.1
Convenience	37.6	45.7	45.7	45.7	45.7	45.1	45.7	49.3	45.7	45.7	46.8
Health, well-being & access.	40.3	38.6	38.6	38.6	38.6	43.2	43.2	52.1	38.6	38.6	34.7
Maintenance & Fault Prediction	44.6	52.8	52.8	52.8	52.8	49.0	52.8	49.0	52.8	52.8	47.6
Information to Occupants	21.0	30.7	30.7	30.7	30.7	29.7	30.7	29.7	30.7	30.7	32.1

Table 8. *La Forgiatura Campus Domain Scores*

Domain	SRI Values (%)										
	Tempra	Forgia sud	Forgia nord	Serra	La Tecnica	Lee Wrangler	Meccanica	La Botte	Bar/ restaurant	Palazza uffici	Raimondi
Heating	54.2	64.8	64.8	64.8	64.8	58.9	64.8	58.9	64.8	64.8	53.1
Domestic Hot Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cooling	56.4	65.5	65.5	66.4	65.5	65.5	65.5	65.5	65.5	65.5	53.9
Ventilation	18.4	26.1	26.1	23.8	26.1	13.3	25.4	41.5	26.1	26.1	26.1
Lighting	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
Dynamic Building Envelope	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	1.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Electric Vehicle Charging	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.4
Monitoring and Control	34.9	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8

In summary, La Forgiatura Campus demonstrates a well-developed foundation for digital control and predictive energy management. However, the overall SRI score remains constrained by limited flexibility, absence of storage, and incomplete interoperability across the 11 buildings. Future integration of energy-flexibility functions and smart façade technologies would significantly enhance the overall smart readiness of the campus.

4.6.4. Improvement Proposal

The improvement strategy for La Forgiatura Campus focuses on strengthening digital interoperability and enhancing energy flexibility across the eleven buildings of the site. Although the individual SRI assessments did not include simulated post-improvement scenarios, the audits identified several strategic measures that could substantially raise the community's overall smart readiness.

The proposed actions include:

- **Extending AI-based predictive control** to all buildings and technical subsystems to ensure consistent optimization across the campus.
- **Integrating energy-storage and demand-response capabilities** to improve the Energy Flexibility and Storage domain and enable interaction with grid signals.
- **Expanding data-exchange and communication protocols** between individual building controllers and the central monitoring platform to enhance interoperability.
- **Automating façade and shading systems** to strengthen the Dynamic Building Envelope and Comfort domains.
- **Deploying predictive maintenance and diagnostic tools** throughout the BrainBox AI framework to further improve the Maintenance and Fault Prediction impact criterion.

Conducting separate SRI assessments for each building proved particularly useful for defining targeted improvement strategies. This approach made it possible to pinpoint which buildings and technical domains most influence the overall campus performance, providing a clear basis for prioritizing digital and energy-flexibility upgrades that would raise the aggregated community SRI score.

*Note: Comprehensive details on the baseline assessment, domain-by-domain and impact-criterion results, are provided in the La Forgiatura Campus Smart Readiness Audit Reports (Tempra Building and Aggregated Campus Assessment), available in **Annex B.1 and B.2** of this deliverable.*

4.7. PAOK FC Training Centre (Greece)

4.7.1. General Description

Pilot Project:	PAOK FC Training Centre
Location:	Nea Mesimvria, Thessaloniki – Greece
Climate Zone (Koppen):	Csa (Mediterranean)
Construction Year:	2015
Floor Area (m2):	1405
Building type:	Sports and training complex
HVAC system typology:	Split units and fan coil systems with local thermostats
Lighting system typology:	LED and automatic lighting control (partial)
Technical Partner - Assessor	IsZEB

The PAOK FC Training Centre is in Nea Mesimvria, northwest of Thessaloniki, and serves as the main training hub for the PAOK Football Club.

The facility includes two distinct buildings, the First Team Building and the Second Team Building, together with outdoor training pitches and auxiliary areas. Each building contains changing rooms, gym and recovery zones, offices, and meeting spaces.

Due to their independent operation and separate control systems, the two buildings were assessed individually and later combined under a community-level Smart Readiness Indicator evaluation. This pilot represents a **Type-B** Smart Ready Community (multi-building complex) within the Smart Square typology.

4.7.2. Methodology Applied

The assessment was carried out using **Methodology 1 - Multi-assessment Weighted Average**.

Each building underwent a separate SRI analysis based on its own technical systems and control capabilities.

The overall community SRI was then calculated using the weighted-average formula according to each building's effective area.

Table 9. *PAOK FC Training Center Functional Units Results*

Functional Unit	Effective Area (m^2)	Effective area weight (%)	Individual SRI (%)	SRI Class
First Team Building	1220	86.8	31.01	**F**
Second Team Building	185	13.2	15.61	**G**

Community SRI = 28.98 % (Class F)

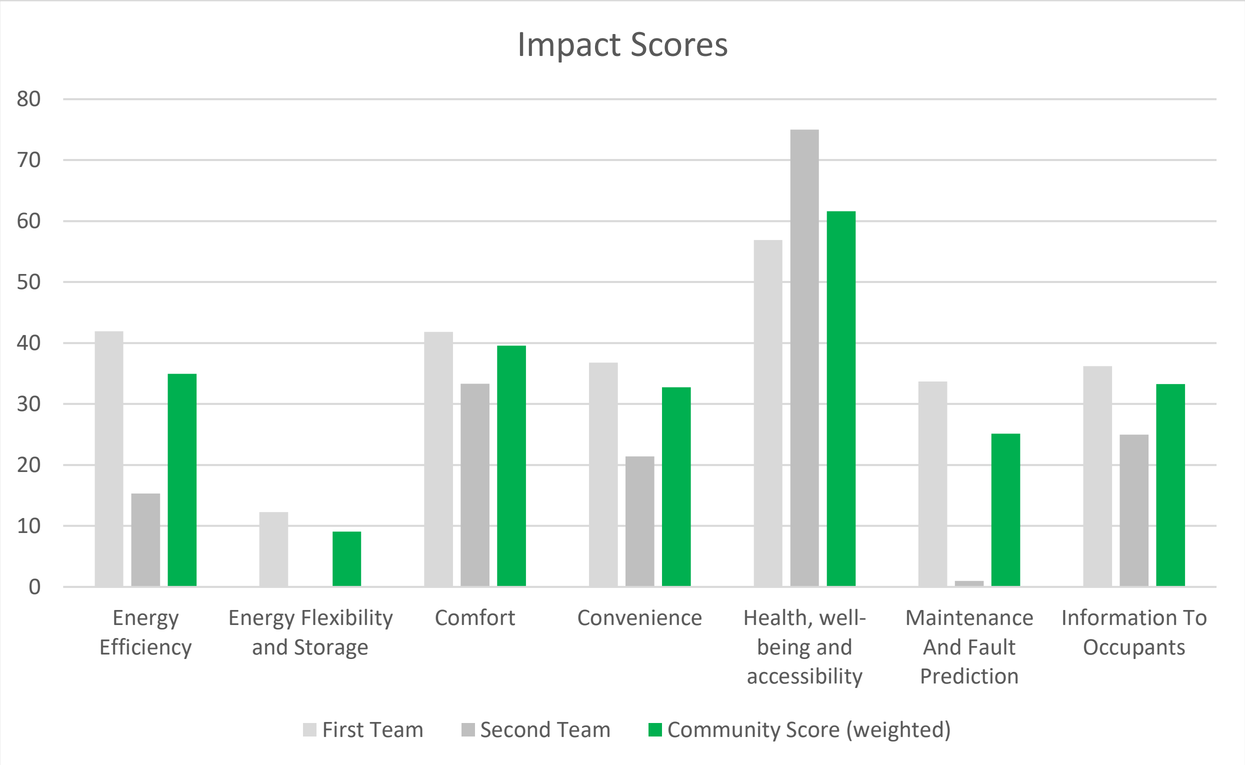
This approach allows a differentiated evaluation of smartness between the two buildings while producing a single representative value for the entire training complex.

4.7.3. Summary of SRI Results

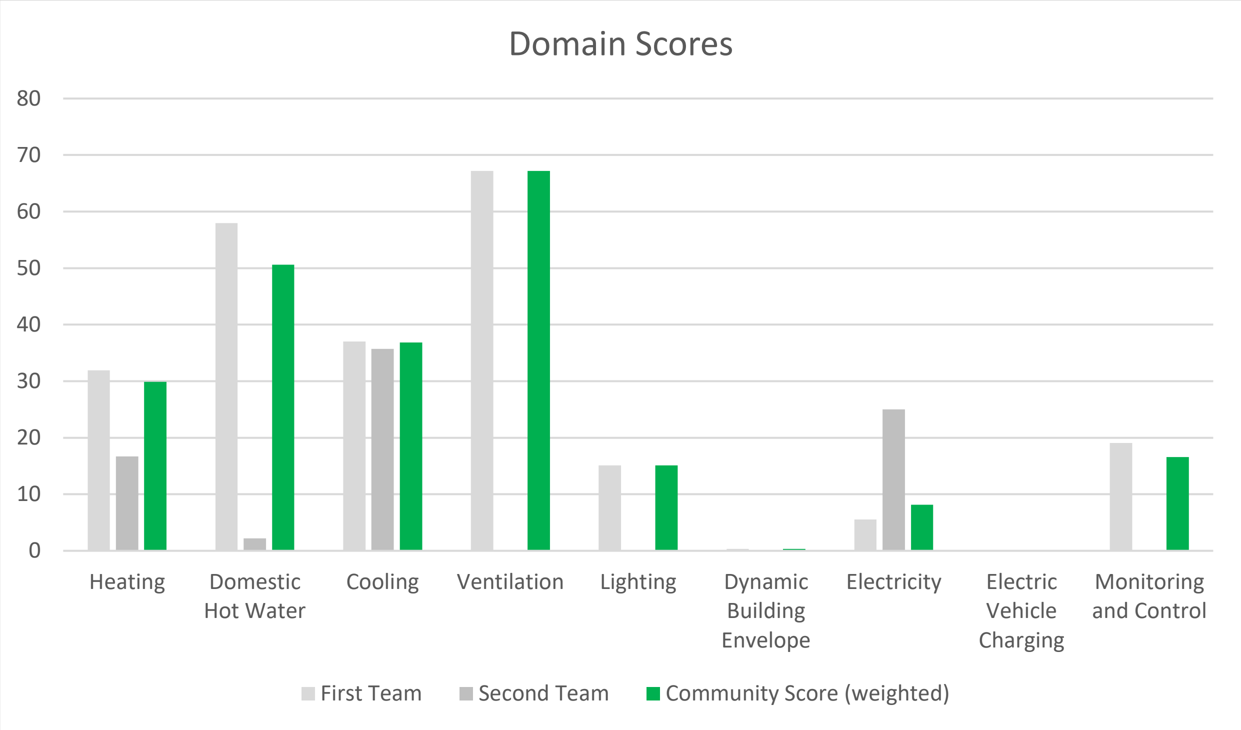
The PAOK FC Training Centre shows a low-to-moderate level of smart readiness, with clear variation between the two buildings.

The First Team Building achieved higher performance (31.01 %, Class F) owing to more advanced lighting automation and local temperature control, while the Second Team Building scored lower (15.61 %, Class G) due to minimal monitoring and manual system operation.

The resulting community score of 28.98 % (Class F) reflects the limited integration of building systems and lack of centralised digital control.



Graph 3. *PAOK FC Training Center Impact Scores*



Graph 4. *PAOK FC Training Center Domain Scores*

At the Impact level, the strongest criteria are Health, Well-being & Accessibility and Energy Efficiency, whereas Energy Flexibility & Storage and Maintenance & Fault Prediction remain very limited.

At the Domain level, Ventilation and Domestic Hot Water achieved the highest results across both buildings, followed by Cooling, which also performed relatively well due to the use of automated temperature control.

Heating and Electricity domains scored at a moderate level, while Lighting and Monitoring & Control remain low, reflecting limited automation and absence of a central BMS. Dynamic Building Envelope scored near zero, as façade system is not automated.

Overall, the analysis demonstrates that both buildings provide acceptable comfort and operational control for their functions, but significant improvement potential exists in automation, interoperability, and digital monitoring.

4.7.4. Improvement Proposal

The improvement strategy for the PAOK FC Training Centre aims to enhance automation, interoperability, and energy flexibility through targeted technological upgrades.

The following measures were identified as priorities:

- **Installation of a Building Management System (BMS)** to enable centralized control, monitoring, and data analytics across both buildings.
- **Integration of renewable energy systems** (e.g., photovoltaic panels) and on-site storage to strengthen the Energy Flexibility and Storage domain.
- **Implementation of smart lighting controls** with occupancy and daylight sensors to improve the Comfort and Energy Efficiency criteria.

- **Deployment of sub-metering and digital monitoring infrastructure** for detailed performance tracking and predictive maintenance.
- **Preparation for demand-response and grid-interactive operation** to allow flexible energy management.

Conducting separate SRI assessments for the First and Second Team buildings was essential to identify specific improvement priorities within each unit. This approach enables the club to address weaknesses systematically and progressively raise the community SRI from its current Class F level.

*Note: Comprehensive details on the baseline assessment, domain-by-domain and impact-criterion results are provided in the PAOK FC Training Centre Smart Readiness Audit Reports (First Team Building and Second Team Building), available in **Annex C.1 and C.2** of this deliverable.*

4.8. LOC - Loreto Open Community (Italy)

4.8.1. General Description

Pilot Project:	Loreto Open Community (LOC)
Location:	Piazzale Loreto, Milan, Italy
Climate Zone (Koppen):	Cfa
Construction Year:	Not constructed yet. (in Design Stage)
Floor Area (m2):	41250
Building type:	Offices, commercial spaces, cultural areas, and public open spaces
HVAC system typology:	Geothermal Heat Pumps
Lighting system typology:	LED
Technical Partner - Assessor	Arcadis Italy

The Loreto Open Community (LOC) represents one of Milan's flagship urban-regeneration projects, located in Piazzale Loreto.

The project aims to transform the area into a multifunctional and energy-flexible hub integrating offices, retail spaces, and public outdoor areas. The site is currently in the design and planning phase, making it an ideal case for testing the applicability of the SRI and Smart Ready Community concepts at design stage.

Within the Smart Square project, three distinct areas were analyzed:

- **Piazza Loreto**, representing the central public and mixed-use core,
- **Porpora Building**, representing office functions, and
- **External Areas**, which include the surrounding public spaces and energy infrastructure.

This pilot therefore corresponds to a **Type-C Smart Ready Community** (urban-scale community) under the Smart Square typology.

4.8.2. Methodology Applied

The Loreto Open Community was assessed using Methodology 1 - Multi-assessment Weighted Average.

Each of the three functional areas was evaluated independently using design-stage documentation and simulation data. The overall community SRI was then derived through the weighted-average formula based on the design area of each component.

Table 10. *Loreto Open Community Functional Unit Results*

Functional Unit	Effective Area (m^2)	Effective area weight (%)	Individual SRI (%)	SRI Class
Piazza Loreto	11203	60.7	78.38	**C**
Porpora Building	3968	21.5	61.84	**D**

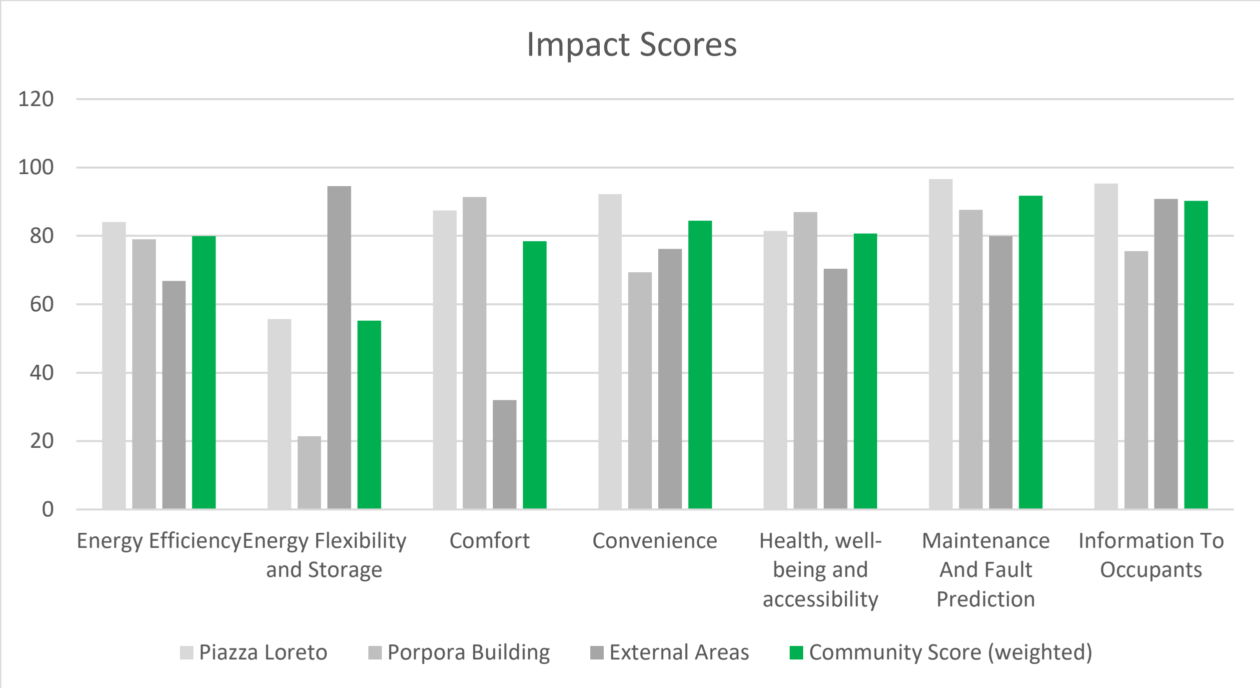
External Areas	3278	17.8	78.41	**C**

Community SRI = 74.83% (Class C)

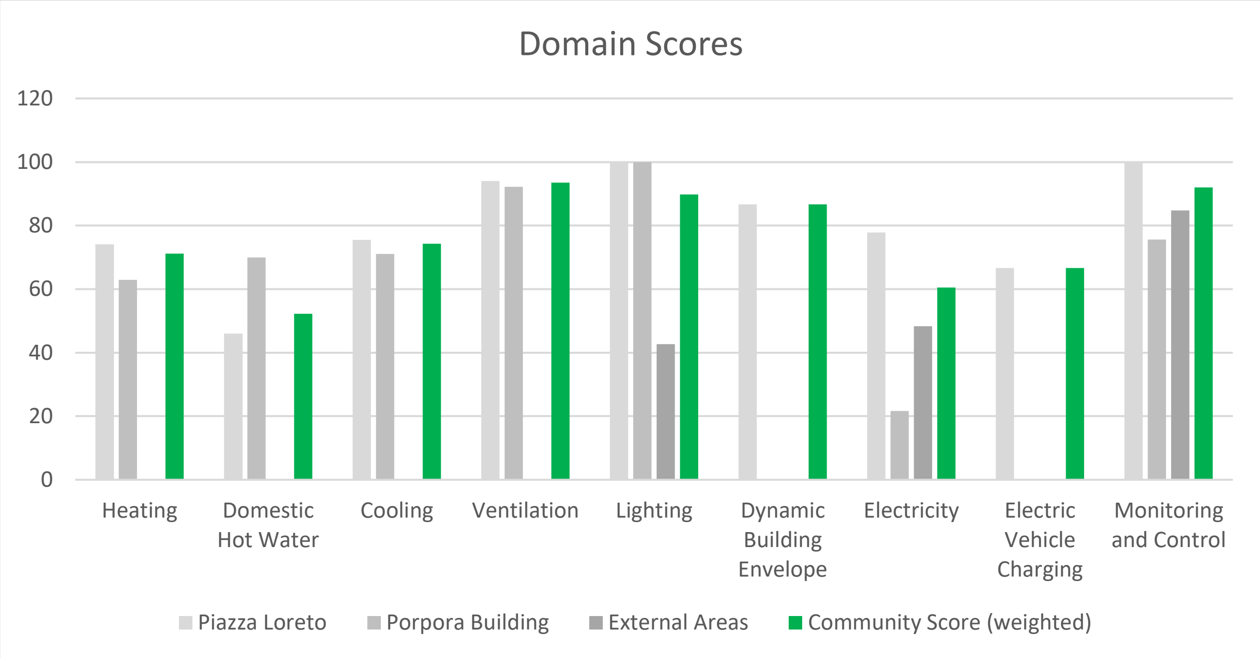
This methodology ensures that the predicted community score accurately represents the contribution of each functional zone while maintaining a detailed understanding of local system performance.

4.8.3. Summary of SRI Results

The design-phase analysis indicates a **predicted community SRI of 74.83% (Class C)**, reflecting a high level of expected automation, digital control, and system coordination across the future community.



Graph 5. *Loreto Open Community Impact Scores*



Graph 6. *Loreto Open Community Domain Scores*

At the Impact level, Energy Efficiency, Comfort, and Maintenance & Fault Prediction show the highest predicted results, driven by the inclusion of advanced BMS functionality, widespread sensor integration, and automated fault diagnostics. Energy Flexibility and Storage achieves a moderate-to-high predicted score thanks to the design-stage integration of PV generation and potential energy-storage systems.

At the Domain level, the strongest predicted performance is achieved in Lighting, Ventilation, and Dynamic Building Envelope, followed by Cooling and Heating domains. Electricity and Monitoring & Control also achieve high values, reflecting extensive digital metering and interoperability between systems.

All domains demonstrate consistent smart-readiness planning across the three functional areas, confirming that the project has been designed with smart-community integration in mind.

4.8.4. Improvement Proposal

Although the Loreto Open Community already demonstrates a high predicted SRI, the design team identified several strategies that could further improve performance during implementation and commissioning:

- **Automation of dynamic shading systems** for façades facing major solar exposure to further optimize comfort.
- **Full interoperability between building subsystems and district-level platforms**, ensuring coordinated control and data exchange.
- **Expansion of predictive maintenance and analytics** functions within the BMS environment.
- **Development of user-engagement tools** (dashboards, mobile apps) to raise awareness and improve operational behavior.

Applying the SRI at the **design stage** proved extremely valuable for identifying these opportunities before construction begins, enabling the project team to maximise the smart-readiness potential of the future community.

Note: Detailed SRI assessments, including domain-by-domain and impact-criterion results for each functional area, are provided in the Loreto Open Community Smart Readiness Audit Reports (Piazza Loreto, Porpora Building, and External Areas), available in ***Annex D.1, D.2, and D.3*** *of this deliverable.*

4.9. Frederick University - New Wing (Cyprus)

4.9.1. General Description

Pilot Project:	Frederick University - New Wing
Location:	Gianni Freiderikou 7, Nicosia 1036, Cyprus
Climate Zone (Koppen):	BSh (Hot semi-arid)
Construction Year:	2010
Floor Area (m2):	2147
Building type:	Educational facility
HVAC system typology:	VRF systems
Lighting system typology:	LED
EPC Class	C
Technical Partner - Assessor	Euphyia Tech ltd

The Frederick University New Wing is a recently constructed educational building designed to extend the university's facilities in Nicosia.

The project integrates energy-efficient systems, renewable generation, and advanced digital control strategies, serving as a demonstration of how **Methodology 2 - Single Integrated Assessment** can be applied to a multi-functional building.

The building contains lecture halls, laboratories, offices, and common spaces, all monitored through a unified control platform.

Due to its integrated digital architecture, the SRI assessment was performed at building level while still considering the **relative contribution of different functional areas** (educational, administrative, and circulation zones) within the Smart-Ready-Go! platform.

This pilot therefore represents a **Type-A** Smart Ready Community (multi-functional single building) under the Smart Square typology.

4.9.2. Methodology Applied

The assessment followed **Methodology 2 - Single Integrated Assessment**, which analyses the entire building as a unified SRI unit while considering its internal functional zones (educational, administrative, and circulation areas).

This method is appropriate for buildings where systems are shared and managed at a central or semi-central level.

Table 11. FU – New Wing SRI Result

Building	Effective Area (m^2)	SRI Score (%)	SRI Class
FU – New Wing	1716	24.27	**F**

Community SRI = 24.27 % (Class F)

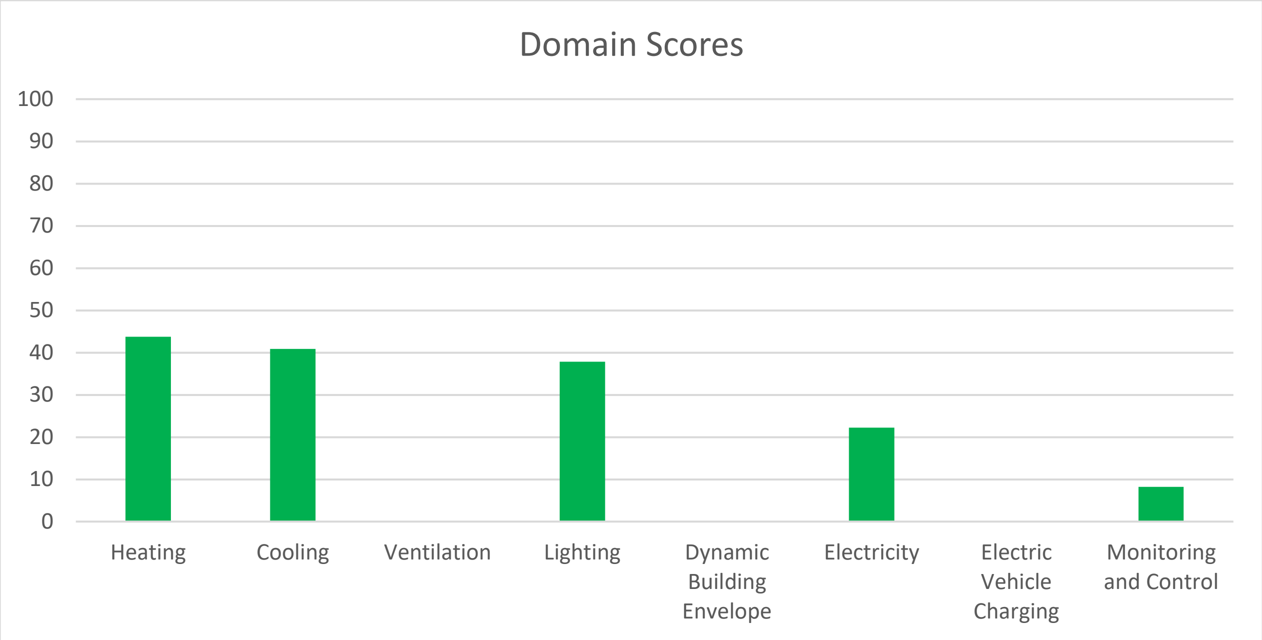
This result reflects the current operational condition of the building, which operates with standard control systems and limited integration between HVAC, lighting, and energy-management functions.

4.9.3. Summary of SRI Results

The Frederick University – New Wing achieved an SRI score of 24.27 % (Class F), indicating a low-to-moderate level of smart readiness primarily limited by basic automation and lack of integrated management.

Although the building is newly constructed, many systems still operate locally, and a central control platform has not yet been fully deployed.

Graph 7. *Frederick University – New Wing Impact Scores*



Graph 8. *Frederick University – New Wing Domain Scores*

At the Impact level, the strongest results were achieved for Energy Efficiency and Comfort, supported by efficient heating and cooling systems. Maintenance and Fault Prediction and Information to Occupants showed moderate performance, while Energy Flexibility and Storage remained low due to the absence of any storage or grid-interactive capability.

At the Domain level, the highest scores were achieved in Heating, Cooling, and Lighting, followed by electricity, which reached moderate values. Monitoring & Control, Dynamic Building Envelope, Ventilation, and Electric Vehicle Charging all showed very low or negligible performance, reflecting the absence of centralised automation, façade control, and flexibility-related functions.

4.9.4. Improvement Proposals

The improvement proposal for the Frederick University – New Wing focuses on enhancing the building's energy performance and operational intelligence by implementing two key upgrades identified in the Smart Readiness Audit:

- **Installation of photovoltaic panels** to harness renewable energy and reduce grid dependency.
- **Upgrade to a Building Management System (BMS)** to enable monitoring and control of the building's technical systems, improving coordination between HVAC and lighting and supporting more efficient operation.

These measures will directly increase the smartness and sustainability of the building by introducing monitoring, automation, and renewable-energy integration. Their implementation is expected to raise the SRI score and contribute to a higher class in future reassessments.

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Note: Full details on the baseline assessment and domain-by-domain results are provided in the Frederick University Smart Readiness Audit Report (New Wing), available in ***Annex E*** *of this deliverable.*

5. 25 PLANNED SMART READY COMMUNITIES

5.1. Introduction

After completing the pilot phase, Task 5.4 expanded its scope to include a replication phase, aimed at validating and scaling up SRI methodology to a broader set of buildings.

A total of 25 additional projects were selected to test the Smart Ready Community concept across different typologies, ownership structures, and levels of digital maturity.

These projects span commercial centers, logistics buildings, hotels, hospitals, educational and residential care facilities, representing the diversity of the European building stock.

All assessments were carried out using the Smart-Ready-Go! platform, following either Methodology 1 (Multi-assessment Weighted Average) or Methodology 2 (Single Integrated Assessment) according to each site's system configuration.

The results of each SRI evaluation were submitted to the respective building owners.

For a subset of projects belonging to the same ownership group (highlighted in the dataset), the Arcadis Italy proposed to extend the use of the SRI results beyond the assessment phase. The proposed next step includes the **continuous tracking of Key Performance Indicators (KPIs)** related to **energy use, indoor comfort, and digital performance**, to establish a measurable link between the **SRI score and real operational behaviour**.

This monitoring framework could also support the evaluation of **Environmental, Social, and Governance (ESG)** indicators, aligning the SRI with emerging sustainability reporting practices.

5.2. Application of Methodology

The replication-phase assessments applied both SRI methodologies, adapting their use according to the functional complexity and configuration of each site.

For **Methodology 2 (single integrated assessment),** used predominantly in the 25 planned communities, each building was evaluated as one unit, with internal differentiation among key functional areas.

For example, in commercial centers, the analysis distinguished between tenant spaces, common areas, and office zones; in hotels, between guest rooms, common and service areas, and administrative offices; and in hospitals, between patient wards, restaurant/canteen areas, and administration.

This approach ensured that functional diversity within a single building was properly represented during the assessment.

A smaller subset of projects applied **Methodology 1 (multi-assessment weighted average)**.

This included some commercial complexes composed of multiple buildings within the same site, where separate SRI analyses were performed for each block and then aggregated using a weighted average.

A similar method was also used for one logistics building (Type A), where the SRI assessment was divided between the office and warehouse/logistics areas to reflect their different system types and control strategies.

These methodological adaptations allowed consistent and comparable SRI results across all typologies while reflecting the operational structure and system boundaries of each building or community.

5.3. Summary of Results

The detailed individual SRI reports for all 25 projects are provided in **Annex F.**

Table 12 below summarises the key outcomes, including the calculated SRI scores, community scores, typology, and methodology used.

Table 12. 25 Smart Ready Communities Results

#	Project Name	Smart Ready Community Type	Building Typology	Floor area (m2)	Smart Ready Community Method	SRI Class	SRI Score	Smart Ready Community Score	Smart Ready Community Class
1	Commercial Center-1	Type B	Shopping Center	29,310	Method-1	**F**	**23.03%**	**22.95%**	**F**
	Commercial Center-1 'Stand-alone'		Shopping Center	400	Method-1	**G**	**16.74%**		
2	Commercial Center-2	Type B	Shopping Center	61,317	Method-1	**F**	**23.52%**	**23.42%**	**F**
	Commercial Center-2 Retail Park		Shopping Center	17,604	Method-1	**F**	**23.07%**		
3	Commercial Center-3	Type B	Shopping Center	34,234	Method-1	**F**	**20.49%**	**19.69%**	**G**
	Commercial Center-3 Retail Park 1		Shopping Center	6,166	Method-1	**G**	**18.36%**		
	Commercial Center-3 Retail Park 2		Shopping Center	11,730	Method-1	**G**	**18.05%**		
4	Commercial Center-4	Type B	Shopping Center	98,177	Method-1	**G**	**17.21%**	**17.03%**	**G**
	Commercial Center-4 Retail Park		Shopping Center	4,836	Method-1	**G**	**16.43%**		
	Commercial Center-4 Cinema		Shopping Center	13,184	Method-1	**G**	**15.88%**		
5	Logistic center-Lotto C	Type A	Logistic Building	19,700	Method-1	**F**	**31.07%**	**31.10%**	**F**
	Logistic center-Lotto E		Logistic office	837	Method-1	**F**	**31.71%**		
6	Commercial Center-5	Type A	Shopping Center	60,180	Method-2	**E**	**41.84%**	**41.84%**	**E**
7	Commercial Center-6	Type A	Shopping Centre	30,402	Method-2	**G**	**18.85%**	**18.85%**	**G**
8	Commercial Center-7	Type A	Shopping Centre	11,361	Method-2	**G**	**19.50%**	**19.50%**	**G**
9	Commercial Center-8	Type A	Shopping Centre	40,299	Method-2	**G**	**19.42%**	**19.42%**	**G**

#	Project Name	Smart Ready Community Type	Building Typology	Floor area (m2)	Smart Ready Community Method	SRI Class	SRI Score	Smart Ready Community Score	Smart Ready Community Class
10	Commercial Center-9	Type A	Shopping Center	29,972	Method-2	**E**	**41.65%**	**41.65%**	**E**
11	Hospital-1	Type A	Hospital	75,943	Method-2	**F**	**31.96%**	**31.96%**	**F**
12	Hotel-1	Type A	Hotel	6,530	Method-2	**G**	**12.66%**	**12.66%**	**G**
13	Hotel-2	Type A	Hotel	27,000	Method-2	**G**	**13.27%**	**13.27%**	**G**
14	Hotel-3	Type A	Hotel	12,900	Method-2	**F**	**20.18%**	**20.18%**	**F**
15	Hotel-4	Type A	Hotel	9,000	Method-2	**F**	**21.00%**	**21.00%**	**F**
16	Hotel-5	Type A	Hotel	37,750	Method-2	**F**	**22.21%**	**22.21%**	**F**
17	Hotel-6	Type A	Hotel	25,500	Method-2	**G**	**16.61%**	**16.61%**	**G**
18	Hotel-7	Type A	Hotel	2,847	Method-2	**F**	**34.73%**	**34.73%**	**F**
19	Residential Care facility-1	Type A	Residential care facility	4,285	Method-2	**F**	**25.18%**	**25.18%**	**F**
20	Residential Care facility-2	Type A	Residential care facility	5,655	Method-2	**F**	**23.30%**	**23.30%**	**F**
21	Residential Care facility-3	Type A	Residential care facility	6,566	Method-2	**F**	**20.89%**	**20.89%**	**F**
22	Residential Care facility-4	Type A	Residential care facility	3,120	Method-2	**G**	**16.73%**	**16.73%**	**G**
23	Residential Care facility-5	Type A	Residential care facility	2,000	Method-2	**G**	**12.99%**	**12.99%**	**G**
24	Residential Care facility-6	Type A	Residential care facility	6,692	Method-2	**F**	**25.02%**	**25.02%**	**F**
25	Residential complex-1	Type A	Residential complex	2,037	Method-2	**F**	**29.33%**	**29.33%**	**F**

Across the 25 assessed buildings, SRI values range **13% to 42%**, corresponding mainly to **Classes F** and **G**, with a few sites achieving **Class E**. The **average SRI score** across the portfolio is approximately **25% (Class F)**, reflecting the early stage of digitalization and automation in most of the analyzed assets.

Higher scores were achieved in newer or recently refurbished commercial and logistics buildings equipped with partial automation and sub-metering, whereas hotels and residential care facilities, typically operating with stand-alone systems, scored the lowest.

This distribution confirms the consistency of the Smart Ready Community methodology and highlights the large potential for improvement through basic upgrades such as BMS installation, integrated monitoring, and renewable-energy control.

5.4. Insights and Observations

The replication phase produced several key findings on the applicability and value of the Smart Ready Community framework:

- **Scalability and adaptability:** The SRI methodology proved effective across a wide variety of building types and system boundaries, ensuring comparable and replicable results.
- **Transparency and prioritization:** The analysis enabled owners to identify the specific domains and functionalities with the greatest potential for improvement, supporting clear, data-driven upgrade roadmaps.
- **Decision-support for owners:** The SRI provides a structured decision tool to plan digitalization measures that combine energy efficiency, flexibility, and occupant well-being.
- **Establishing a digital baseline:** The 25 assessments establish a **benchmark** of smart-readiness performance, allowing future tracking of improvements at both building and community level.
- **Linking SRI to real-life performance and ESG indicators:** For selected ownership groups, the proposed KPI and performance-tracking extension will allow correlation of SRI values with operational energy data and ESG metrics, strengthening the link between smart readiness, sustainability, and governance objectives.

5.5. Overall Impact

The replication phase demonstrates that the Smart Ready Community methodology is scalable, repeatable, and operationally valuable across Europe's diverse building stock.

Even in cases with low baseline scores, the SRI process provided clear, actionable guidance for enhancing energy efficiency, comfort, and digital interoperability.

By showing that incremental upgrades, such as BMS deployment, system interconnection, or renewable-energy integration can meaningfully improve smart-readiness, the replication phase reinforces the SRI's relevance as a planning and ESG-support instrument for owners and policymakers.

Note: Complete SRI results for all 25 planned Smart Ready Communities are available in ***Annex F*** *of this deliverable.*

6. CORRELATION BETWEEN SRI, EPC AND ENERGY PERFORMANCE

6.1. Introduction

A key objective of Task 5.4 is to investigate the relationship between smart readiness, energy performance, and operational behavior in buildings and communities.

While the **Energy Performance Certificate (EPC)** represents the intrinsic energy efficiency of a building's design, the **Smart Readiness Indicator** evaluates the capacity of its systems to operate intelligently, adaptively, and efficiently in real time.

By comparing these indicators, the project explores how digitalization, automation, and interoperability influence energy outcomes and user comfort.

Within the Smart² framework, this analysis was extended to the **Smart Ready Community (SRC) level**, where multiple buildings or functional units interact through shared management systems, energy infrastructures, or data networks.

This community-oriented approach enables a more accurate understanding of how **collective smartness** contributes to **real-world energy efficiency and flexibility**.

6.2. Dataset Overview

The analysis covered all 30 assessed projects (5 pilot Smart Ready Communities and 25 replication-phase sites).

For each case, the available SRI scores, EPC classes, and, where possible, energy-consumption data (kWh/m²·year) were compared to identify qualitative relationships between smartness and energy performance.

The dataset includes a diverse set of typologies, such as commercial, educational, hospitality, healthcare, and residential buildings.

However, given the limited sample size and the differing national EPC methodologies, the results should be interpreted as indicative rather than statistically representative.

In general, **buildings with newer construction or recent renovation tend to hold better EPC classes** (A–C) **and display a broader range of SRI scores**, while **older or less renovated assets typically show lower EPC ratings (D–G) and limited smart functionalities**.

This qualitative trend supports the assumption that energy-efficient design and digitalization often coincide, but not systematically.

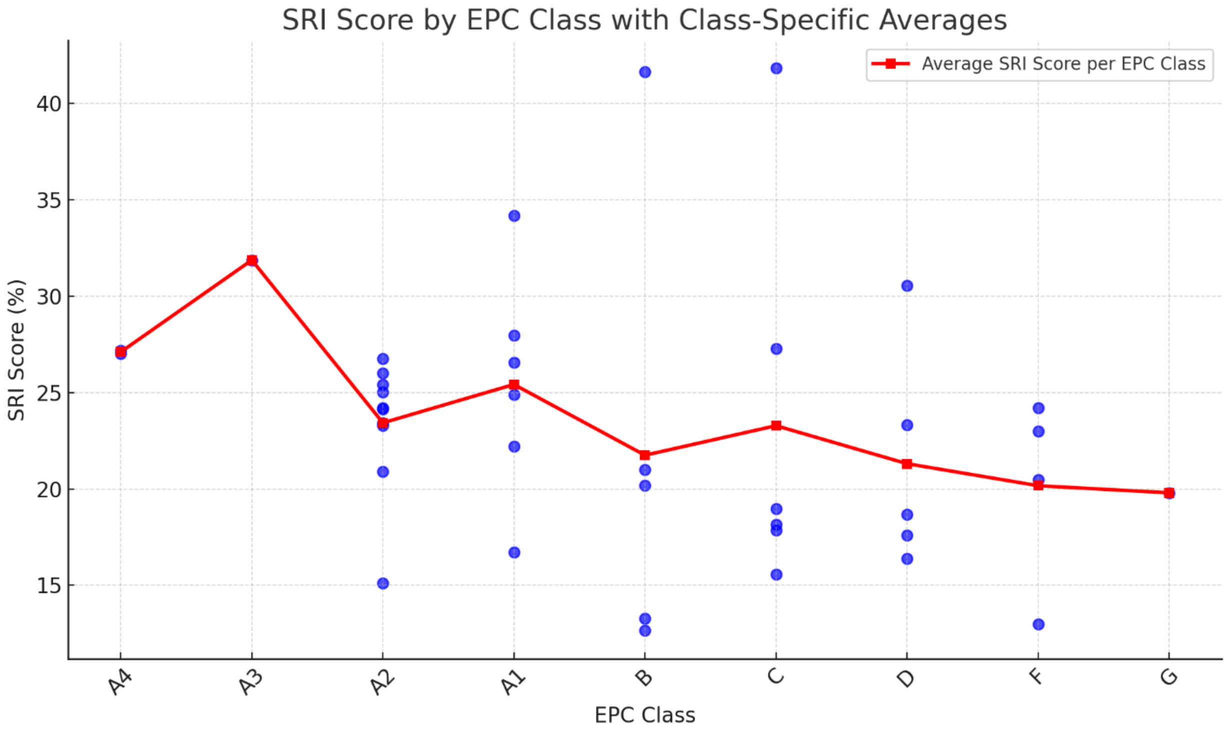
6.3. Observed Correlations

a. EPC-SRI Relationship:

A general trend can be observed where buildings with **higher EPC performance (A–C classes)** also tend to achieve **moderate to high SRI scores (Classes C–D)**, particularly when equipped with integrated automation and monitoring systems.

However, the correlation is **not linear**. Some energy-efficient buildings still display low SRI values, revealing limited smart functionalities, while a few buildings with average EPC ratings perform relatively well due to advanced digital management.

This confirms that **EPC and SRI are complementary indicators**; energy efficiency describes potential, whereas smart readiness expresses capability.



Graph 9. SRI – EPC Class Correlation

Using the dataset from **Task 4.2 - Implementation of SRI Audits in Selected Pilot Buildings**, and the 25 projects analysed within **Task 5.4**, the SRI and EPC classes have been compared where data were available.

Graph 9 shows a general decreasing trend of SRI scores from higher EPC classes (A4–A1) toward lower classes (E–G), though the relationship remains non-linear. Some high-efficiency buildings achieve low SRI scores, confirming that strong energy performance does not necessarily translate into advanced smartness.

Conversely, several EPC C and D buildings display medium SRI results, often due to targeted retrofit actions such as the installation of monitoring or automation systems.

This analysis reinforces the fundamental principle of **Task 5.4**:

- The EPC assesses design efficiency,
- The SRI measures operational intelligence, and
- Their combination provides a complete and meaningful view of **building and community performance.**

From a Smart Ready Community perspective, this relationship also demonstrates that collective coordination; for example, shared Building Management Systems, centralized monitoring, or integrated renewable control can increase the average SRI at the community scale even when individual EPC classes remain unchanged.

This finding underlines the added value of the community-based approach.

b. SRI and Operational Energy Use:

For the pilot sites where measured energy-consumption data were available (Monte Rosa 91, La Forgiatura), a moderate inverse relationship was observed between SRI scores and energy intensity.

Higher SRI values generally corresponded to **lower or more stable energy use per square metre**, especially where predictive control, AI-based management, or real-time monitoring were implemented. This suggests that **smart functionalities enhance operational efficiency** by maintaining optimal system performance under variable occupancy and environmental conditions.

c. Added value of the Smart Ready Community:

The community-scale methodology offers significant advantages for analyzing and improving the relationship between SRI and energy performance:

• It captures **interactions between multiple systems** (e.g., shared HVAC, renewable-energy generation, or control platforms) rather than evaluating each building in isolation.

• It allows the identification of **localized inefficiencies** within the community that may disproportionately affect overall energy use.

• Weighted-average SRI calculations provide a **holistic view of smart-readiness impact**, linking technical domains to operational energy trends at a collective scale.

• It supports the use of **shared monitoring and data infrastructures**, which are essential for establishing quantitative SRI–energy correlations.

By evaluating buildings as part of a **coordinated community**, it becomes possible to show that the **collective management of digital systems** may deliver more robust and meaningful energy-performance insights than separate building-level analyses.

d. Domains with Highest Correlation to Energy Indicators

Across all projects, Monitoring & Control, Lighting, and HVAC-related domains (Heating, Cooling, Ventilation) show the strongest association with measured or expected energy efficiency improvements.

Energy Flexibility and Storage, though less implemented, represents the domain with the greatest potential for future correlation as flexibility services and renewable integration expand.

6.4. Discussion and Key Takeaways

a. Complementary insights:

The EPC measures theoretical or design-stage energy efficiency, whereas the SRI captures a building's or community's potential to operate efficiently in real time through digital and automated functions. Their combined use provides a **more comprehensive framework** for evaluating both the design potential and the operational intelligence of buildings and communities.

b. Smartness as a multiplier of efficiency:

The comparison between SRI and energy data **suggests that higher levels of digitalisation and control can contribute to more stable and efficient operation**, although the strength of this relationship varies depending on system integration, occupancy, and maintenance practices.

c. Added value of the Smart Ready Community approach:

Assessing multiple buildings under shared management and monitoring systems provides **broader contextual understanding** of digitalisation effects.

The community-scale perspective helps to identify **cross-building interdependencies**, optimise the use of shared resources, and reveal **collective patterns** that are not visible at single-building level.

d. Need for continuous monitoring:

Real-time data collection and KPI tracking remain essential to validate the correlations identified in this study.

The proposed monitoring for selected sites (see Chapter 5 on the replication-phase activities) will allow a **quantitative evaluation** of how SRI improvements translate into measurable changes in energy performance and comfort.

e. ESG and policy implications:

Establishing a link between SRI, EPC, and operational data can support **evidence-based sustainability reporting**.

Over time, SRI may serve as a **complementary metric** within ESG and energy-policy frameworks, helping to capture the digital dimension of building performance.

6.5. Outlook

Future work will focus on consolidating these findings by:

- Implementing continuous performance monitoring in selected Smart Ready Communities,
- Developing data-driven analyses to better understand the relationship between SRI domains and operational performance indicators, and
- Extending the comparison between smart readiness, energy efficiency, and flexibility potential as more real-life data become available.

These actions will help refine the understanding of how smart readiness contributes to real performance outcomes, while establishing the Smart Ready Community as both a technical and analytical framework for managing **the digital transition of Europe’s built environment**.

7. COMPARATIVE ANALYSIS AND FINDINGS

7.1. Objective of the Comparative Analysis

The comparative analysis presented in this chapter aims to consolidate the results obtained from the **5 pilot Smart Ready Communities** and the **25 planned projects**, forming a coherent overview of how the **Smart Ready Community (SRC)** concept performs across different building typologies, ownership structures, and methodological approaches.

At this stage, work should be considered **conceptual and evolving**, rather than definitive. The analyses carried out so far provide an initial validation of the methodology and a first interpretation of its outcomes.

Further developments are foreseen during the next phases of the Smart² project, as new datasets, monitoring information, and stakeholder feedback become available.

This ongoing process will refine the Smart Ready Community framework and expand its applicability in real-life contexts.

The purpose of this comparative exercise is twofold:

1. **To understand** how the results from different sites and methodologies relate to each other, identifying recurring trends and typology-specific differences; and
2. **To demonstrate** how the Smart Ready Community approach provides **added value compared to traditional single-building SRI assessments.**

Unlike the evaluation of an individual building, the community-based approach allows the assessment of **shared infrastructures, collective decision-making processes, and cross-building synergies**.

By considering buildings as part of an integrated ecosystem, the Smart Ready Community model supports:

- a more **holistic understanding** of digitalization and energy-management strategies;
- **coordinated planning** of smart upgrades and **shared investments**; and
- the development of a **common digital baseline** for district-scale sustainability initiatives.

Furthermore, this analysis provides the foundation for identifying **technical and financial advantages** of the Smart Ready Community concept.

In addition to promoting energy efficiency and digital transformation, the SRC framework has the potential to:

- facilitate **access to financial incentives and public support**, by demonstrating collective progress toward EU smart-building goals;
- generate **operational cost savings** through shared management systems and reduced energy consumption; and
- **increase the overall property value** of buildings that participate in coordinated smart-community programs.

Finally, the comparative analysis also explores how the Smart Ready Community framework contributes to the broader **eco-digital transition**, aligning energy, environmental, and digital objectives at the urban scale. This dual transition, both ecological and digital, is at the heart of the Smart² project vision and serves as a guiding principle for the evolution of Task 5.4 activities.

7.2. Cross-comparison by Typology and Methodology

The comparative analysis of the 30 assessed sites was carried out by grouping the projects according to **building typology** and **methodological approach**.

This leads to identifying how functional diversity, system complexity, and methodological choices influence the Smart Readiness Indicator outcomes at both the building and community levels.

a. <u>Typology-based comparison</u>

The dataset includes a wide range of building types:

- Commercial buildings and shopping centers,
- Logistics and industrial facilities,
- Hotels and hospitality buildings,
- Educational and healthcare institutions, and
- Residential or mixed-use communities.

While these typologies differ significantly in energy intensity, operation, and automation maturity, several general tendencies were observed:

- **Commercial and logistics buildings** achieved the **highest SRI values**, generally between 30% and 45%, as they often include at least partial automation or a centralized building management system (BMS).
- **Hotels and healthcare facilities** typically scored lower, around **20–30%**, due to their more fragmented control systems and heterogeneous operational patterns.
- **Residential care or smaller buildings** presented the lowest results, often below **25%**, reflecting the limited penetration of advanced control and monitoring technologies in these sectors.

These observations are qualitative and should be interpreted as indicative trends, as the sample size remains limited and the level of digitalisation and system integration varies significantly among the assessed sites.

Nevertheless, they provide a useful basis for understanding how building functions and control typology shape smart-readiness performance.

b. <u>Methodology-based comparison</u>

Two different methodological approaches were applied during Task 5.4 to represent the diversity of building configurations and management structures.

- **Methodology 1 - Multi-assessment weighted average:**

  Applied mainly to the **pilot communities** and a few **multi-building commercial or logistics sites**, this approach involved conducting separate SRI analyses for each functional unit or building block. The individual SRI scores were then combined through a **weighted average**, based on each unit's effective area.

  This method is particularly effective in reflecting functional heterogeneity and analyzing **domain-level variations** across different units.

  However, it requires more detailed data and results in longer assessment times.

- **Methodology 2 – Integrated single assessment:**

Used predominantly for the **25 replication-phase communities**, this approach models each site as a single system but considers internal variations in functionality.

For instance, in commercial centers, the analysis distinguished between **tenant zones**, **common areas**, and **office functions**; while in hotels or hospitals, **guest rooms**, **administrative spaces**, and **common areas** were separately represented within one integrated SRI calculation.

This method allows a simplified and more scalable application of the Smart Ready Community concept, while still accounting for major operational differences within a building.

While both methodologies are aligned with the SRI framework, **their results are not directly comparable**.

Methodology 1 provides a **more detailed, granular perspective** that highlights local differences in system performance, whereas Methodology 2 delivers a **holistic, community-level score** that captures the overall smartness of integrated infrastructures.

It should be noted that the results obtained through Methodology 1 and Methodology 2 **may differ slightly**, since each approach captures the system boundaries and shared functionalities in a different way.

Methodology 2 can better represent collective or integrated systems within a single model, whereas Methodology 1 provides more detailed insight into functional variations across separate units.

c. <u>Interpretation of methodological outcomes</u>

The use of both methodologies across different typologies demonstrates the **flexibility and scalability** of the Smart Ready Community framework.

It allows SRI assessments to be adapted to diverse contexts, ranging from individual building clusters to fully integrated urban districts, without compromising consistency or comparability.

These complementary approaches ensure that the SRC concept can be **replicated at different scales**, from a single multi-use building to a coordinated group of assets operating under shared digital infrastructure.

7.3. Common Strengths and Weaknesses Across All Cases

The comparative review of the 30 SRI assessments reveals recurring patterns in the performance of technical domains and impact criteria across different building typologies and community configurations.

While the absolute results vary from site to site, several consistent tendencies emerge that help describe the overall maturity of smart readiness in the assessed portfolio.

a. <u>Strengths</u>

- **Lighting and Comfort domains**

  Most buildings achieve relatively good results in Lighting and Comfort-related functionalities, mainly due to the widespread use of LED systems, occupancy sensors, and temperature control devices. Even in buildings with limited automation, these domains often perform better because modern lighting and HVAC equipment already incorporate some level of controllability.

- **Energy Efficiency and Comfort impact criteria**

  Across all typologies, the Energy Efficiency and Comfort impact categories consistently reach the highest average values.

  These functions are supported by both technological improvements (high-efficiency systems) and user-oriented controls (local thermostats, timers, or occupancy-based adjustments).

- **Monitoring and Control**

  Although not always comprehensive, a growing number of assessed buildings include **smart meters or monitoring systems** at least for electricity and HVAC.

  This indicates an increasing awareness of the value of data collection and represents a foundation for future interoperability.

b. <u>Weaknesses</u>

- **Energy Flexibility and Storage**

  The **lowest-performing domain** across nearly all cases is **Energy Flexibility and Storage**. Only a few sites include integrated energy storage, demand-response capability, or automated load control.

  These functionalities remain at an early stage of adoption and are usually absent from smaller or older facilities.

- **Dynamic Building Envelope**

  Automation of façades, shading, and envelope components is still rare. Most buildings rely on manual or semi-automated operation, which limits their potential to reduce heat gains or daylight variability in real time.

- **Electric Vehicle Charging and Renewable Integration**

  EV charging infrastructure and renewable generation control are generally **not yet integrated** within building or community management systems. Where present, these systems often function independently, without interoperability or data exchange with HVAC or lighting systems.

- **Maintenance and Fault Prediction**

  Predictive maintenance remains underdeveloped, typically limited to manual inspections or basic fault alarms. Advanced diagnostics, condition monitoring, and AI-based maintenance strategies are seldom implemented.

c. <u>General Observations</u>

- These patterns confirm that smart readiness is progressing unevenly across domains: control and efficiency-oriented functions are already common, whereas flexibility and predictive functions are still emerging.
- The **Smart Ready Community framework** can help accelerate progress by enabling **shared investments** in advanced functionalities, such as centralized monitoring, energy storage, and flexibility services, that may not be cost-effective for individual buildings.
- Community-level collaboration can also create conditions for **standardization of control strategies** and **data interoperability**, addressing current fragmentation in digital management practices.

Overall, the findings suggest that the **digital transformation of buildings is underway but remains partial**, with significant potential for improvement through collective strategies on the community scale.

7.4. Advantages and Added Value of the SRC Concept

The comparative analysis confirms that applying the **Smart Ready Community (SRC)** framework offers several advantages that go beyond the results of single-building SRI assessments.

The approach adds value by promoting **cooperation, shared infrastructure, and collective digital maturity** across buildings that coexist within the same site, ownership, or district.

1. <u>Technical and operational advantages</u>

- **Holistic assessment:**

  The SRC methodology allows the evaluation of **shared systems**, such as common HVAC, lighting, renewable generation, or monitoring platforms, that cannot be represented adequately in single-building assessments. This ensures a more realistic depiction of how smart functionalities interact at community scale.

- **Interoperability and integration:**

  By analyzing several buildings under one digital framework, the community approach encourages **standardization of communication protocols**, **interoperable data platforms**, and **coordinated control logic**.

- **Collective improvement planning:**

  Community-level SRI assessments enable the identification of **cross-building dependencies** and **collective upgrade opportunities** (e.g., a shared BMS, district-level energy storage, or joint maintenance systems). This helps to define improvement strategies that maximize overall efficiency rather than optimizing each building separately.

2. <u>Financial and economic advantages</u>

- **Shared investment:**

  Smart upgrades, such as digital metering networks, renewable-energy management systems, or flexibility services, can be financed collectively, reducing individual costs for building owners or tenants.

- **Operational savings:**

  Coordinated control and energy-sharing mechanisms can lead to **lower total energy consumption** and **reduced maintenance effort**, producing tangible financial benefits over time.

- **Access to financial support:**

  The Smart Ready Community framework aligns with **EU and national funding priorities** that promote district-scale digital and energy transitions. Demonstrating community-level coordination and shared smart infrastructure may increase eligibility for **public financial incentives or sustainability-linked financing**.

3. <u>Urban, social, and environmental advantages</u>

- **Contribution to the eco-digital transition:**

  The SRC concept directly supports the EU's **twin ecological and digital transition**, fostering energy efficiency, decarbonization, and data-driven management within the same framework.

- **Homogeneous and coherent urban context:**

  By applying consistent smart-readiness principles at district level, communities can create **more uniform levels of digitalization and comfort**, improving resilience and quality of life.

- **Increased property and community value:**

Participation in a Smart Ready Community enhances the **market value and visibility** of individual buildings.

The collective reputation of a smart district can act as a **multiplier for investment attractiveness** and stimulate further improvements by neighboring properties.

- **Community engagement and awareness:**

  Sharing SRI results within a district encourages transparency and cooperation. When one building undertakes a smart-readiness assessment or upgrade, it can **trigger interest and replication** among others, accelerating collective progress.

4. <u>Methodological implications</u>

The SRC approach also demonstrates methodological benefits for the evolution of the SRI framework itself:

- It allows **scalable application** of the SRI to multiple-building sites without losing analytical precision.
- It provides a basis for testing how **different weighting and aggregation methods** affect the overall community score.
- It facilitates the integration of **monitoring and KPI tracking**, enabling continuous evaluation of smart-readiness improvements over time.

Overall, the Smart Ready Community methodology provides a **strategic, technical, and financial framework** for implementing smart-building principles on a scale.

It complements single-building SRI assessments by enabling coordinated digitalization, shared investment, and stronger links to urban sustainability objectives.

Although the approach is still in a **conceptual and evolving phase**, the results obtained so far confirm its **potential as a catalyst** for both smart-building innovation and the broader eco-digital transition.

7.5. Lessons Learned and Benchmarking

The implementation of the Smart Ready Community (SRC) framework across 30 projects has generated valuable lessons on both the **methodological** and **practical** dimensions of the SRI.

Although the results presented so far are still preliminary and conceptual, they already provide a useful foundation for identifying trends, gaps, and potential future benchmarks for smart readiness at community scale.

1. <u>Methodological lessons</u>

- **Adaptability of the SRI methodology:**

  Both **Methodology 1** (multi-assessment weighted average) and **Methodology 2** (single integrated assessment) proved adaptable to a variety of configurations, from single multi-functional buildings to complex multi-building campuses. Applying both methods under real conditions helped clarify their **respective strengths and limitations**, showing that the SRI can be scaled and adjusted to reflect real operational boundaries.

- **Differences between Methodology 1 and Methodology 2:**

  Results obtained from the two methodologies **may differ slightly**, as they capture system boundaries and shared functionalities in different ways. Methodology 1 offers **granular insight** into the performance of each unit or subsystem, while Methodology 2 provides a **holistic overview** of collective smart readiness. These differences are complementary, and the combined experience supports a more robust application of the SRI to diverse contexts.

- **Importance of defining functional boundaries:**

  Dividing buildings by functionality, such as offices, logistics areas, or tenant spaces, proved essential for obtaining accurate and meaningful results. This approach allowed the team to highlight **function-specific strengths and weaknesses** and to design **targeted improvement measures** within larger communities.

2. Practical lessons

- **Data availability and quality:**

  The completeness and accuracy of system data remain a key challenge for SRI assessments. Access to technical documentation, system specifications, and control sequences often determined the level of detail achievable in each analysis. Future work will benefit from **closer collaboration with building operators** and the integration of **digital monitoring data**.

- **Variation in digital maturity:**

  Considerable variability was observed between building types and ownership contexts. Even within the same typology, the degree of automation, metering, and interoperability varied widely, suggesting that **smart readiness depends as much on operational practices as on technology**.

- **Community engagement:**

  Conducting assessments at community scale highlighted the importance of **coordination among multiple stakeholders**. The process encouraged dialogue between owners, facility managers, and tenants, demonstrating that **smartness is not only technical but also organizational**.

3. Benchmarking approach

To enable future comparison and performance tracking, a preliminary **benchmarking framework** was defined based on the current dataset.

The **top 15%** of assessed communities represent the **best-performing examples** in terms of digital integration and interoperability, typically including:

- Centralized or cloud-based building management systems (BMS),
- Integrated sub-metering and monitoring for multiple systems, and
- Partial automation of lighting and HVAC based on occupancy or scheduling.

The **top 30%** of cases reflect **emerging best practices**, where smart functionalities are in place but not yet fully coordinated or exploited. These benchmarks can serve as reference points for potential future replication of the Smart Ready Community methodology.

They also provide the basis for defining **target ranges** in subsequent monitoring activities, where improvement over time can be tracked relative to these reference levels.

4. Overall reflections

The lessons drawn from this first implementation stage confirm that the Smart Ready Community approach is a **practical and scalable extension** of the SRI framework.

It can accommodate both high-level digital strategies and the operational realities of existing buildings. As monitoring data becomes available, these insights will be refined into **quantitative benchmarks and performance indicators**, allowing continuous improvement and policy alignment.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1. General Conclusions

Task 5.4 of the Smart² project has focused on developing and testing the Smart Ready Community (SRC) concept through the application of the Smart Readiness Indicator across a portfolio of **30 case studies**, 5 pilot communities and 25 additional planned projects.

This work represents a **conceptual and evolving phase** in the establishment of the SRC framework. The analyses carried out so far provide a first operational structure and a preliminary understanding of how smart-readiness principles can be extended from individual buildings to community or district scales.

The main outcome of this work is the confirmation that the **Smart Ready Community approach is feasible, flexible, and scalable**, allowing SRI principles to be adapted to a wide range of building typologies, ownership structures, and system configurations.

By applying both **Methodology 1** (multi-assessment weighted average) and **Methodology 2** (single integrated assessment), the project has demonstrated that the SRI can be consistently applied to multi-building sites and complex functional environments while maintaining comparability and methodological integrity.

At this stage, the results should not be interpreted as final conclusions but as **a foundation for future development**.

The SRC framework will continue to evolve through ongoing monitoring, new case studies, and collaboration with building owners and public stakeholders. The experiences gathered so far form a **reference baseline** for the continued refinement of community-level smart-readiness assessment.

8.2. Key Findings

1. **<u>Feasibility of community-level assessment:</u>**

   The SRI methodology can be successfully applied to groups of buildings that share technical systems, energy infrastructures, or management platforms. This opens the possibility of extending smart-building strategies to **district and campus scales**.

2. **<u>Added technical and operational value:</u>**

   The community-based approach provides a **holistic understanding** of digitalization, interoperability, and energy management. It identifies collective upgrade opportunities, such as shared monitoring, BMS integration, or flexibility services, that may not be visible in single-building analyses.

3. **<u>Potential financial and strategic benefits:</u>**

   The SRC concept introduces **economies of scale** in digitalization investments. Shared infrastructure can reduce costs for individual stakeholders, while aggregated performance improvements may strengthen eligibility for **financial incentives or sustainability-linked funding**. At operational level, optimized control and data coordination can also result in measurable **energy savings and reduced maintenance costs**.

4. **Support for the eco-digital transition:**

The SRC framework contributes to the **dual ecological and digital transition** by combining energy efficiency, automation, and user-centric design. It supports more coherent, data-driven management at the community scale and facilitates **collective decision-making** toward decarbonization.

5. **Encouragement of behavioral and social changes:**

By sharing smart-readiness results across multiple buildings, the community model fosters **awareness, transparency, and cooperation**. One building's digital upgrade can stimulate similar action in neighboring buildings, accelerating the overall pace of transformation.

8.3. Recommendations and Future Work

1. **Continuing methodological refinement:**

Further research should focus on **harmonizing the two methodologies**, defining clear criteria for when each is most suitable, and ensuring comparability of results across different scales.

2. **Expand dataset and validation:**

Further studies and replication initiatives could incorporate additional case studies and integrate real operational data from monitoring activities. This will enable more robust statistical analysis and validation of correlations between **SRI, energy performance, and user comfort**.

3. **Develop performance indicators and benchmarks:**

Building on the current dataset, the next step is to establish **quantitative benchmarks** and **target ranges** for SRI performance, enabling owners and policymakers to track progress over time.

4. **Explore financial and policy instruments:**

The findings suggest that the Smart Ready Community approach could be aligned with **financial support mechanisms**, such as energy-transition grants or ESG-linked investment tools. Future work should investigate how SRI-based evidence can be used to unlock or prioritize such funding at district level.

5. **Promote integration with urban planning and ESG frameworks:**

As the SRC concept matures, it should be progressively integrated into **urban-renovation policies, smart-city strategies, and ESG reporting practices**, ensuring that digitalization and sustainability objectives evolve together.

6. **Enhance stakeholder collaboration:**

The implementation of the Smart Ready Community model requires ongoing engagement among **building owners, municipalities, and technology providers**. Establishing regular feedback channels will help ensure that the framework remains practical, adaptable, and aligned with stakeholder needs.

8.4. Final Remarks

The Smart Ready Community framework offers a promising pathway toward more intelligent, efficient, and resilient built environments.

By connecting buildings through shared digital infrastructure and coordinated management, it transforms the SRI from a building-level indicator into a **tool for collective improvement and strategic decision-making**.

The work carried out in Task 5.4 does not represent a final conclusion but rather the **establishment of a foundation** for future application and refinement of the Smart Ready Community methodology.

The experiences and results achieved within the Smart² project can serve as a **reference for future research, policy development, and implementation activities** aimed at advancing the smart and sustainable transformation of Europe's built environment.

In this sense, the Smart Ready Community framework remains a valuable contribution to Europe's ongoing transition toward **sustainable, connected, and digitally empowered communities**.