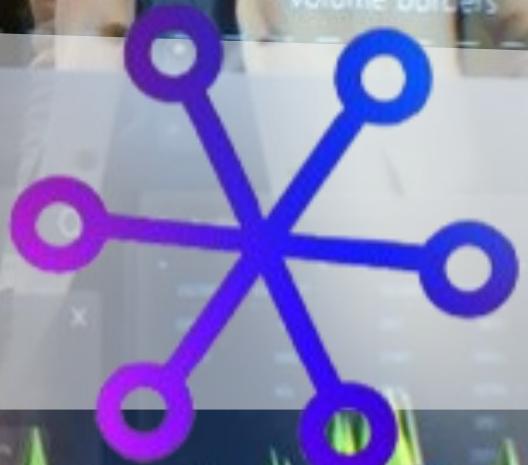


# fundão ACTION PLAN



metacity

**Virtual solutions  
for real people**



**URBACT**



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the European Union  
Interreg**



# A WORD FROM OUR MAYOR

## Miguel Tarouca Gavinhos

Mayor of Fundão

Fundão is a small city with a bold vision. Over the past decade, we have worked tirelessly to transform our territory into a living laboratory for digital innovation, social inclusion, and sustainable development. Through the METACITY project, we are taking that commitment to the next level – harnessing emerging technologies not just to modernise public services, but to strengthen community ties and improve everyday life for all residents.

This Integrated Action Plan is the result of intense collaboration: between local institutions and European partners, between digital experts and frontline workers, and above all, between citizens who believe that even the smallest municipalities can shape the digital future on their own terms.

The challenges are real. Ageing populations, territorial inequalities, and limited resources continue to test our resilience. But Fundão has chosen not to be defined by its constraints. Instead, we are using tools like digital twins, immersive technologies, and inclusive platforms to reimagine how we plan our city, deliver services, and support the most vulnerable.

What sets this plan apart is its human-centred focus. It brings digital skills to seniors, immersive learning to young people, and new creative opportunities to our local talent. It creates space for participation, for experimentation, and for meaningful local ownership.

To our partners across Europe, thank you for your trust, your knowledge, and your openness. METACITY is more than a project – it is a shared commitment to ensure that digital transformation in Europe is inclusive, collaborative, and grounded in real places with real people.

Let this Action Plan be both a roadmap and a promise. A promise that Fundão will continue to innovate, not for innovation's sake, but in service of a more connected, equitable, and vibrant future for all.



**URBACT**



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VIRTUAL SOLUTIONS FOR REAL PEOPLE  
**metacity**  
fundão action plan

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01

# INTRODUCTION

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**Fundão**, a small municipality in Portugal's Centro Region, is the lead partner of the **METACITY** project, an Action Planning Network (APN) under the **URBACT IV programme**, running until December 2025. Approved in June 2023 as one of only 23 successful applications, METACITY is focused on helping small and medium-sized cities navigate the complexities of **digital transformation**. By adopting innovative technologies such as the **metaverse**, the project seeks to enhance public service delivery, improve urban governance, boost competitiveness, and strengthen urban resilience.

Fundão has a long-standing commitment to **innovation** and **digital inclusion**, having successfully led prior initiatives like the **IoTXchange network** under URBACT III. Through METACITY, the municipality aims to integrate **metaverse technologies** into its public administration and urban development strategies, transforming how services are delivered, increasing citizen engagement, and preparing for future socio-economic challenges.

A key feature of the METACITY project is the active involvement of **URBACT Local Groups (ULG)**, which bring together local government officials, citizens, and representatives from the private sector. These groups play a pivotal role in shaping the **Action Plan**, ensuring it reflects the needs and aspirations of Fundão's residents. The participation of the ULGs fosters a strong sense of **community ownership**, contributing to a more inclusive approach to urban planning and development.

This **Action Plan** outlines Fundão's vision for integrating **immersive technologies** and **digital tools** into public services, with a strong emphasis on promoting **digital literacy**, particularly among the elderly, ensuring that all citizens benefit from the city's digital transformation. By leveraging the metaverse, Fundão aspires to lead in **smart city development**, setting a benchmark for other small and medium-sized cities across Europe.

In the broader context, the **European Commission** has highlighted the critical importance of the metaverse, emphasising that these digital environments operate in real-time and cannot be paused or reset. This underscores the urgency for local governments to embrace this digital frontier, adapting to rapid technological advancements.

Public interest in the metaverse and **artificial intelligence (AI)** is growing rapidly, with citizens increasingly recognising that digital technologies will reshape their interactions with governments, employers, and one another. However, many remain uncertain about when and how these changes will manifest. Now is the pivotal moment for local administrations to fully embrace digital transformation, addressing not only the adoption of new technologies but also the **ethical, legal, and behavioural implications** that accompany these advancements.

The immersive digital environments offered by the metaverse and AI tools will significantly reshape urban life, influencing how people work, travel, access public services, and interact with their local governments. The **METACITY initiative** presents a significant opportunity for Fundão and nine other small to medium-sized cities to collaboratively plan and implement these changes. By working together and involving the ULGs, these municipalities aim to ensure that their citizens experience the tangible benefits of digital transformation in their everyday lives by the end of this decade.

#### ACKNOWLEDGEMENTS

The Municipality of Fundão extends its heartfelt gratitude to all local and European partners involved in the METACITY project. Your contributions are invaluable to our collective efforts in driving digital transformation within the community.

We especially thank the members of our URBACT Local Group (ULG) for their active participation and insights, which have ensured that the voices of Fundão's residents are reflected in this Action Plan. Your dedication to community engagement and inclusivity is essential for our success.

Additionally, we appreciate our European partners for their support and collaboration throughout this journey. Your shared experiences and best practices have deepened our understanding of the challenges of digital transition. Together, we are setting a standard for how small and medium-sized cities can utilise innovative technologies to create sustainable, smart urban environments. We look forward to continuing our collaboration to empower our communities and enhance the quality of life for all citizens.





02

# BACKGROUND AND POLICY CONTEXT

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## 2.1 CITY PROFILE AND SOCIO-ECONOMIC OVERVIEW

Fundão, located in the Centro Region of Portugal within the Beiras and Serra da Estrela sub-region, is a municipality marked by its unique geographic and economic characteristics. Spanning **701.65 square kilometres and composed of 23 parishes**, the region is predominantly rural, with a mix of urban and agricultural zones. The town of Fundão itself serves as the primary urban centre, where commerce and service industries dominate, while the surrounding rural areas are renowned for their agricultural output, particularly the production of cherries, peaches, wine, and olive oil.

As of the 2021 Census, Fundão had a resident population of **26,509 people**, reflecting a significant decline of 9.3% compared to 2011. This decrease is part of a longer-term trend, with the population dropping by 15.8% since 2001. **Fundão's demographic profile is characteristic of many rural regions in Portugal, with an ageing population and a low birth rate.** In 2021, young people (aged 0-14) made up only 10.1% of the population, while 32.5% were over the age of 65, a significant increase over the last decade. This ageing trend is a central challenge for Fundão, as it mirrors the broader difficulties faced by Portugal's interior regions, which struggle with depopulation and the loss of a young workforce.

Despite this, the municipality has shown resilience in attracting **new residents, especially from abroad**. In 2020, foreign nationals made up 4% of Fundão's population, the highest percentage in the Beiras and Serra da Estrela region. This growing international community highlights the area's potential to attract those seeking a better quality of life in a rural setting, enhanced by digital connectivity and opportunities in sectors such as agro-technology and sustainable tourism.

Economically, Fundão's traditional reliance on agriculture has been complemented by efforts to **embrace digital innovation**. The town's integration of the Internet of Things (IoT) and other smart city technologies is a clear indication of its ambition to modernise its economic base. Nonetheless, challenges persist, particularly in terms of low average income levels and an ageing labour market. In 2019, the purchasing power parity per capita in Fundão was 21% below the national average, although this marked an improvement from the 28% gap in 2009.

Fundão's housing market has also seen changes over the past decade, with the average sale price of urban properties rising from €56,817 in 2009 to €86,319 in 2019. This indicates growing demand for property, likely spurred by increased investment and the attractiveness of the area for both local and foreign buyers.



Area

**701,65 km<sup>2</sup>**

Population density

**38 inhab/km<sup>2</sup>**



Resident population

in 2021

**26.509**

**- 9,3%**

Variation compared to 2011



## 2.2 POLICY CONTEXT

The Municipality of Fundão has strategically positioned itself as a leader in digital transformation and innovation, particularly through its focus on addressing the socio-economic challenges common to many small and medium-sized cities in Portugal. These challenges include high levels of youth unemployment, an ageing population, and a decline in economic activity, which have had a significant impact on the municipality's demographic and economic fabric.

Recognising the need for a forward-thinking approach, Fundão has centred its policy framework around the principles of Open Innovation and Social Innovation. This strategy was formalised in the **Fundão Innovation Plan**, first implemented in 2012, which sets out a comprehensive agenda for fostering creativity, entrepreneurship, and digital transformation. The plan's primary goal is to leverage the unique strengths of the region—such as its geographic location, historical and cultural heritage, and its strong tradition of commerce—while promoting the adoption of new technologies to stimulate economic growth and improve quality of life.

A central element of this policy approach is the **Living Lab Cova da Beira**, a collaborative innovation space that integrates co-working facilities, a fablab for prototyping, and an incubator for social and business projects. The Living Lab has played a pivotal role in creating an ecosystem where technological innovation, particularly in agriculture, can flourish. This ecosystem brings together key stakeholders, including local businesses, educational institutions such as the University of Beira Interior, and public bodies, to collaborate on projects that enhance the region's competitiveness and sustainability.

Fundão's strategic vision aligns closely with national and European policies on regional development. Through its active involvement in the **URBACT** programme—an initiative co-financed by the European Regional Development Fund (ERDF) to promote sustainable urban development—Fundão has participated in multiple transnational networks aimed at tackling contemporary urban challenges. For example, the **IoTXchange** project, part of URBACT III, demonstrated Fundão's leadership in integrating Internet of Things (IoT) solutions to improve the quality of life in small and medium-sized cities. Building on this experience, Fundão is now leading the **METACITY** initiative, approved under URBACT IV, which focuses on the digital transition of small cities and the strategic adoption of technology to enhance service efficiency and competitiveness in the face of larger urban centres.

At the heart of Fundão's policy approach is its commitment to an **open governance model**. This model promotes transparency and inclusivity, ensuring that the municipality's actions reflect the real needs and interests of its citizens. Through initiatives such as participatory budgeting, Fundão has empowered residents to take an active role in shaping local governance. Fundão has

used **participatory budgeting** to allocate a portion of its municipal budget based on proposals and ideas from the community, further embedding citizen participation in decision-making processes.

The municipality's commitment to **digital innovation** is underscored by several key projects aimed at modernising infrastructure and improving public services. The development of **smart public buildings**, **energy-efficient solutions**, and **IoT-based services** reflects Fundão's ambition to transform itself into a smart city. The recent implementation of a **LoRa communication network** across the entire municipality is a prime example of how Fundão is leveraging cutting-edge technologies to support IoT applications in areas such as agriculture, energy, mobility, and public safety. This network allows for the long-range, low-power transmission of data, which is essential for IoT devices to function effectively in rural settings.

Fundão's policy framework also places a strong emphasis on **economic sustainability** and the promotion of **entrepreneurship**. The **Living Lab Cova da Beira** has been instrumental in supporting the growth of startups and small businesses, particularly those operating in the technology and agro-tech sectors. As a result of these efforts, Fundão has attracted significant investment from both national and international companies, generating over 500 jobs in the Information and Communication Technology (ICT) sector. This economic revitalisation has also been supported by the creation of the **Academias de Código**, an innovative programme launched in 2016 to train local residents in coding and programming skills through intensive bootcamps. These efforts aim to equip the local workforce with the digital skills needed to meet the demands of Fundão's growing tech industry.

In terms of **sustainability**, Fundão is also committed to reducing its environmental impact and improving the efficiency of public services. The municipality has invested in **waste management** and **biodiversity protection** and has implemented **LED public lighting** across its entire territory, significantly reducing energy consumption. Fundão is also actively exploring further reductions in energy use through the deployment of **smart grid technologies**. The intersection of digital innovation and environmental sustainability is a key component of Fundão's long-term development strategy, ensuring that the municipality remains competitive, resilient, and sustainable in the face of future challenges.

Overall, Fundão's policy context is defined by a proactive, forward-looking approach that seeks to integrate digital innovation with open governance and sustainability. By aligning its local policies with broader European goals, particularly those outlined in the URBACT and Horizon 2020 frameworks, Fundão is positioning itself as a model for other small and medium-sized cities in Europe that are navigating the complex challenges of the digital age.





03

# FUNDÃO & METACITY

metacity fundão action plan



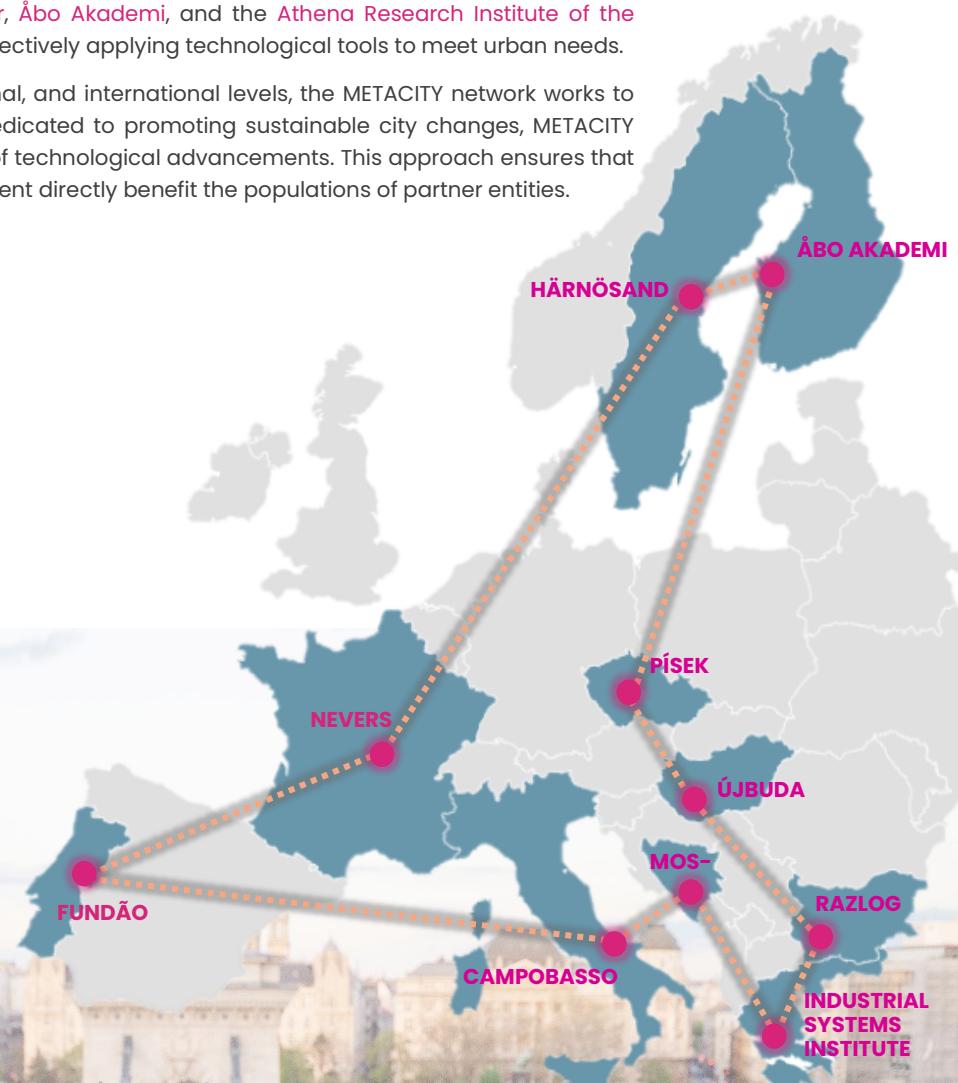
### 3.1 PROJECT BRIEF SUMMARY

The COVID-19 pandemic has catalyzed profound societal changes, with two years of remote urban service delivery leading citizens to appreciate the convenience of accessing services from home. Now, users seek to maintain digital efficiency while also rekindling missed human interactions. Leveraging advancements like the Metaverse and AI tools such as ChatGPT makes this balance achievable.

In response to these evolving needs, the Municipality of Fundão leads the Action Planning Network Metacity (APN Metacity) until December 2025, an initiative approved under the URBACT IV program. Fundão spearheads this project to tackle digital transition challenges, enabling cities to strategically adopt technology for improved service efficiency and competitiveness against larger urban centers.

The METACITY project is timely as small and medium-sized cities aim to harness technology for urban planning and administrative services. Members of this network, including Fundão, Campobasso, Písek, Nevers, Razlog, Újbuda, Härnösand, Mostar, Åbo Akademi, and the Athena Research Institute of the Industrial Systems Institute, grapple with effectively applying technological tools to meet urban needs.

Collaborating with partners at local, national, and international levels, the METACITY network works to realize its vision. Supported by URBACT, dedicated to promoting sustainable city changes, METACITY focuses on the regulated implementation of technological advancements. This approach ensures that developed technology and metaverse content directly benefit the populations of partner entities.





#### LOCAL ACTION GROUP (LAG)

In every URBACT network, each city partner is tasked with establishing a Local Action Group (LAG) to convene all key local stakeholders involved in addressing the chosen challenge that the city aims to tackle. These stakeholders are actively encouraged to engage in the formulation and execution of urban development strategies. By fostering collaboration among partners to address a specific issue and facilitating the exchange of experiences on a transnational scale, the Local Action Group ensures a more robust and inventive outcome, culminating in the co-creation of a Local Action Plan.

#### INTEGRATED ACTION PLAN (IAP)

An Integrated or Local Action Plan (IAP) is a strategic document that addresses identified needs, analyzes problems and opportunities, and presents sustainable and viable solutions. Every partner city within the URBACT network is required to develop an IAP, which can be structured in various formats. Primarily, the Local Action Plan serves as a practical and effective tool for the city to address a local issue and/or enhance a local situation. In the URBACT framework, the Local Action Plan emerges from the participatory process of the URBACT Local Action Group.

#### BUDGET – ACTION PLANNING NETWORKS

The budgets allocated to action-planning networks are designated for learning, exchange, and planning activities, rather than investment purposes.

#### TIMELINE

**30 MONTHS**

1 JUN 2023 – 31 DEC 2025

#### Beneficiaries

**8** Cities

**2** Universities

#### METACITY network budget

**849.986,75€**

**575.528,57€ supported by ERDF**

**58.314,33€ supported by IPA fund**

#### Municipality of Fundão budget

**173.720,00€**

**80% co-financed by ERDF**

The METACITY project addresses the evolving needs of citizens in the digital age, recognising the rapid shift towards remote service delivery, the growing reliance on digital tools such as ChatGPT, and the concurrent desire for meaningful human interaction in public services. METACITY is designed to help small and medium-sized cities leverage immersive technologies like the metaverse to modernise their public services, improve the quality of life for their citizens, and foster sustainable, inclusive growth.

At the core of the project is the belief that the metaverse, combined with enhanced digital infrastructure, can transform the way cities operate and how citizens engage with local governance. METACITY promotes the integration of immersive technologies across key areas of public service, empowering cities to better respond to the evolving expectations of their citizens while ensuring that these digital tools are accessible and inclusive for all members of society.

#### **Innovative Solutions for European Cities:**

METACITY envisions a future where cities can harness the power of digital twins, virtual environments, and augmented realities to streamline municipal operations, optimise urban planning, and deliver smarter, more efficient services. A key milestone for participating cities is the creation of a Digital Twin, a virtual replica of the city that enhances data-driven decision-making and allows for real-time monitoring and simulation of infrastructure, public services, and urban development.

Through the METACITY Action Plan, cities will not only upgrade their digital infrastructure but also foster a culture of innovation, ensuring that technological advancements are aligned with the unique needs and priorities of each city. Cities will benefit from the project's robust network of local, national, and international partners, helping them achieve sustainable impacts and long-term benefits for their citizens.

#### **Focus on Key Thematic Areas:**

METACITY's approach is structured around nine key thematic areas, providing cities with the flexibility to choose the themes

most relevant to their local context and digital transformation goals. **Each participating city can focus on the areas that align closely with their needs**, allowing them to tailor their digital transformation efforts and make meaningful progress in modernising public services and infrastructure. The key areas include:

**E-inclusion of Citizens to Local Governance** – Enhancing citizen participation in decision-making processes through digital platforms, ensuring that governance becomes more transparent and accessible.

**Spatial Planning and Construction** – Using digital twins and augmented reality for smarter urban planning, enabling cities to better manage land use, zoning, and infrastructure development.

**Social and Welfare Services** – Integrating immersive technologies to improve access to welfare services, making them more responsive and tailored to individual needs.

**Education** – Leveraging the metaverse for virtual classrooms, remote learning, and digital literacy programmes to bridge educational gaps.

**Public Transport** – Creating smart mobility solutions, improving traffic flow, and reducing emissions through digital simulations and real-time data analytics.

**Road Infrastructure and Parking** – Optimising the management of road networks and parking systems with the help of advanced sensors and virtual models.

**Health** – Enhancing healthcare services by integrating digital health records, virtual consultations, and telemedicine solutions into the local health infrastructure.

**Culture, Leisure, and Sports** – Promoting cultural activities and community engagement through virtual exhibitions, concerts, and sports events.

**Tourism** – Enriching the tourism experience by offering immersive virtual tours, augmented reality city guides, and enhanced visitor services.

### **THEMES TO CHOOSE FOR THE 10 METACITY ACTION PLAN**

**Empowering small cities to embrace the metaverse for inclusive growth and development.**



**E-inclusion of Citizens to Local Governance**

**Spatial Planning & Construction**

**Social & Welfare Services**

**Education**

**Public Transport**

**Road Infrastructure and Parking**

**Health**

**Culture, Leisure, and Sports**

**Tourism**

**RESULT**

**INCREASE THE QUALITY OF LIFE**

## 3.2 FUNDÃO'S STRATEGIC VISION AND OBJECTIVES

FUNDÃO, A MUNICIPALITY WITH A BOLD VISION FOR THE FUTURE, IS SETTING A BENCHMARK IN DIGITAL TRANSFORMATION BY EMBRACING IMMERSIVE TECHNOLOGIES, THE METAVERSE, AND DATA-DRIVEN DECISION-MAKING. THROUGH THE METACITY PROJECT, FUNDÃO SEEKS TO LEAD BY EXAMPLE, DEMONSTRATING HOW SMALL CITIES CAN INTEGRATE CUTTING-EDGE SOLUTIONS TO MODERNIZE PUBLIC SERVICES, ENHANCE CITIZEN ENGAGEMENT, AND DRIVE SUSTAINABLE URBAN DEVELOPMENT. THIS INITIATIVE UNDERSCORES THE MUNICIPALITY'S COMMITMENT TO FOSTERING A CONNECTED, INCLUSIVE, AND FORWARD-LOOKING SOCIETY.

### A Vision for a Digitally Empowered Future

At the heart of Fundão's strategy lies the ambition to become a digitally empowered city that leverages emerging technologies to improve the quality of life for its residents. The municipality recognizes that the digital age necessitates a transformative approach to governance, where traditional boundaries are transcended, and where citizens interact with their city in new, immersive ways.

By embracing virtual and augmented environments, Fundão envisions a future where public services are more accessible and where technological advancements drive inclusivity, ensuring that no citizen is left behind. This digital transition is designed to accommodate diverse needs, with a particular focus on making services more user-friendly for vulnerable groups, including the elderly and those less familiar with digital tools.

### Four Strategic Pillars of Fundão's Digital Action Plan

#### E-Inclusion of Citizens in Local Governance

Fundão is committed to enhancing participatory democracy through digital engagement platforms that provide citizens with greater transparency and direct interaction with decision-makers. By fostering digital literacy and ensuring widespread access to technology-driven public services, the municipality aims to empower its residents, reducing barriers to participation and ensuring that governance is more inclusive and representative of community needs.

#### Smart Spatial Planning and Infrastructure

The municipality is leveraging digital tools such as immersive simulations and real-time data analytics to revolutionize urban planning and development. By incorporating advanced technologies, Fundão seeks to optimize land use, enhance infrastructure sustainability, and strengthen urban resilience. The integration of predictive analytics allows the city to anticipate spatial challenges and make data-driven decisions that promote long-term environmental and economic stability.

#### Public Transport and Smart Mobility

Recognizing the importance of mobility for economic and social inclusion, Fundão is integrating digital solutions to enhance public transport efficiency. Through real-time data collection, predictive analytics, and smart mobility planning, the city aims to optimize routes, schedules, and infrastructure. These efforts will improve accessibility, reduce traffic congestion, and contribute to a more sustainable urban transport network.





CULTURE, LEISURE,  
AND SPORTS



### Culture, Leisure, and Sports Innovation

Fundão is leveraging technology to enhance cultural engagement, expand access to artistic experiences, modernize recreational activities, and position itself as a hub for the video game industry. The municipality is investing in the development of a local gaming ecosystem, fostering video game production, digital creativity, and e-sports initiatives. Dedicated spaces for game development and training will be established to support emerging talent and attract industry stakeholders. Digital platforms will support local talent and community participation while promoting well-being through innovative and immersive leisure experiences, including the integration of virtual reality in sports and cultural activities.

### Addressing the Challenges of Digital Transformation:

To fully harness the potential of digital transformation, Fundão is committed to addressing structural, social, and technological challenges. The city is focusing on expanding access to digital tools, fostering innovation in urban development, strengthening cultural and recreational opportunities through technology, and optimizing mobility solutions to enhance connectivity and accessibility for all citizens. By addressing these barriers proactively, the city ensures that digital innovation benefits all citizens and sectors of the municipality.

### Shaping the Future of Small Cities Through Digital Innovation

By integrating advanced technologies into urban planning, governance, and public services, Fundão is creating a more resilient and adaptive city. The municipality's commitment to digital literacy, data-driven decision-making, and immersive experiences is fostering an ecosystem that supports economic growth, social inclusion, and sustainability. Through collaboration at local, national, and European levels, the city is adopting innovative solutions that enhance public services and urban resilience. By embracing smart governance and sustainable development, Fundão is establishing itself as a leader in digital innovation for cities of its scale.

FUNDÃO'S JOURNEY TOWARDS THE FUTURE OF URBAN GOVERNANCE IS A CLEAR INDICATION THAT WITH THE RIGHT VISION, EVEN SMALL CITIES CAN HARNESS THE POWER OF DIGITAL INNOVATION TO DRIVE MEANINGFUL CHANGE, IMPROVE QUALITY OF LIFE, AND PROMOTE SUSTAINABLE DEVELOPMENT.



04

# DEVELOPMENT OF THE ACTION PLAN

metacity fundão action plan



## 4.1 METHODOLOGY AND APPROACH

The project's methodology was solidified during the Activation Phase of Metacity. The Project Team developed a structured approach to guide transnational meetings and foster effective collaboration with Local Action Groups (ULGs), which was discussed, approved by the Local Groups, and refined through a series of online and/or in-person meetings. The primary focus was the development of the Integrated Action Plan (IAP) through participatory action planning, involving close consultation with stakeholders and extensive analysis of local contexts and priorities.

The diagram to the right illustrates the principal steps in creating an action plan: identifying issues and opportunities, addressing specific needs, defining expected outcomes, and planning a set of co-produced actions with stakeholder input at all stages. Each ULGs meeting concentrated on a different phase of the Action Planning Cycle, allowing the project to progress in structured, strategic steps. Below are the core steps at the local level that shaped the process:

HERE IS A SUMMARY OF THE MAIN STEPS AT LOCAL LEVEL:

1. CREATION OF THE LOCAL ACTION GROUP WITH REPRESENTATIVES OF THE PUBLIC AND PRIVATE SECTOR;
2. STAKEHOLDER ANALYSIS;
3. DEFINITION OF PROBLEMS AND CHALLENGES;
4. GATHERING EVIDENCE BASED ON CASE STUDIES AND FIELD WORK;
5. GENERATING IDEAS FOR SSA AND IAP SOLUTIONS;
6. IMPLEMENTATION AND OUTCOME OF SSA - SMALL SCALE ACTION;
7. DEFINITION OF ACTIONS AND FINALISATION OF ACTION TABLES;
8. IDENTIFICATION OF POTENTIAL FUNDING MECHANISMS FOR IAP ACTIONS;
9. COMMUNICATION AND CONSULTATION WITH KEY STAKEHOLDERS AND VALIDATION OF THE IAP
10. FINAL PHASE AND FORMAL LAUNCH OF THE IAP

Due to various constraints, not all members were able to attend each of the 10 meetings held over the two-year period. To ensure all participants stayed informed and aligned, a summary presentation in PowerPoint or other accessible formats was shared following each meeting. This allowed absent members to stay up-to-date and served as a helpful reference for attendees. These summaries were invaluable for stakeholder engagement and provided a robust foundation for the development of the IAP.

### 01 MEET

#### LOCAL ACTION GROUP CREATION

Establish a Local Action Group comprising local agents focused on addressing local issues and the action plan theme.



### 02 DEFINE

#### PROBLEM DEFINITION & CHALLENGES

Analyse and confirm the core problem, ensuring alignment with stakeholders on key issues.



### 03 COLLECT

#### GATHERING EVIDENCE & GENERATING IDEAS

Define specific objectives, vision, and key resources relevant to the city and action plan theme.



### 04 DEVELOP

#### DEFINING ACTIONS

Preparation of an action framework outlining actions, expected results, targets, milestones, outputs, resources, partners, timeline, budget, and other key details.



### 05 COMMUNICATE

#### COMMUNICATE ACTION PLANS AND STRATEGIES

Develop a communication strategy for the public presentation of the Action Plan, including organising an event and inviting local media.



## 4.2 URBACT LOCAL GROUP (ULG) AND THE BOTTOM-UP APPROACH

### FUNDÃO LOCAL ACTION GROUP (ULG)

The Fundão Local Action Group (ULG) serves as a pivotal stakeholder collective, comprising individuals and organisations directly impacted by the city's initiatives. This diverse group includes representatives from local institutions, businesses, and associations, each bringing valuable expertise and perspectives crucial to the successful implementation of the Metacity initiative.

#### Significance of the Local Action Group

The ULG is strategically structured to ensure a comprehensive representation of key sectors aligned with the project's themes. This includes political, economic, associative, and knowledge-based domains. The inclusion of varied voices and expertise is vital for establishing a robust foundation that not only enhances the effectiveness of the Metacity initiative but also amplifies its socio-economic impact on the community.

The success of the Metacity project fundamentally relies on the quality and commitment of the ULG. The collective efforts of this group directly influence the benefits that will accrue to the city, local businesses, and residents. An engaged and cohesive ULG will foster a collaborative environment that encourages innovative solutions and sustainable development strategies.

#### Engagement Strategy

By December 2025, the LAG is scheduled to hold a total of 10 meetings, as detailed in section 4.1 (Methodology and Approach). **These meetings are designed not only to facilitate ongoing collaboration but also to ensure that the momentum of community engagement continues beyond the project's lifespan.** Establishing a framework for sustained dialogue will be crucial for adapting the Metacity Action Plan to the evolving needs of the Fundão community.

# Fundão Local Action Group metacity

#### POLITICAL ENTITIES: MUNICIPALITY OF FUNDÃO

Administrative Modernisation and IT Services

Division of Innovation and Investment

Division of Planning, Urban Development, and Quality of Life

Division of Urban Management

#### REGIONAL AUTHORITY FOR STRUCTURAL FUNDS & POLICY

##### IMPLEMENTATION:

CCDRC—Coordination Committee for Regional Development of Centro region

#### EDUCATIONAL INSTITUTIONS:

Fundão Schools Group

Gardunha and Xisto Schools Group

Fundão Professional School

#### KNOWLEDGE INSTITUTIONS:

UBI – University of Beira Interior

#### BUSINESSES:

Xicos

DeepNeuronic

The DanyalGil company

Devoteam

The DanyalGil company

Mirage Virtual Reality

Cyango

#### ARCHITECTURE OFFICES:

Nuno Garcia

Florindo Belo Marques

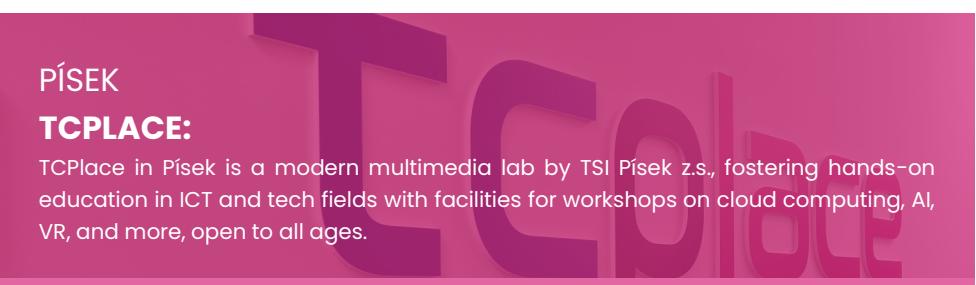


## 4.3 KNOWLEDGE EXCHANGE AND LEARNING AT THE EUROPEAN LEVEL

Since June 2023, the METACITY project, led by Fundão and approved under the URBACT IV program, has brought together 10 European partners—cities and academic institutions—to collaboratively address digital transformation challenges. By sharing knowledge and expertise, METACITY focuses on using emerging technologies to improve the quality of life in small and medium-sized cities.

Transnational meetings are at the core of METACITY, where representatives from each partner—Fundão, Campobasso, Písek, Nevers, Razlog, Újbuda, Härnösand, Mostar, Åbo Akademi, and the Athena Research Institute—come together to exchange best practices, discuss case studies, and develop strategic action plans. Each partner city benefits by adapting solutions that have shown results in other regions, ensuring a tailored approach that reflects the unique needs and strengths of each community.

This international network not only enhances local approaches to urban planning and public services but also strengthens the project's impact on a broader European scale. Supported by URBACT, METACITY thus creates a robust platform for sustainable, technology-driven urban development that directly benefits local populations.



### PÍSEK

#### TCPLACE:

TCPlace in Písek is a modern multimedia lab by TSI Písek z.s., fostering hands-on education in ICT and tech fields with facilities for workshops on cloud computing, AI, VR, and more, open to all ages.



### ÚJBUDA

#### VR-TOUR:

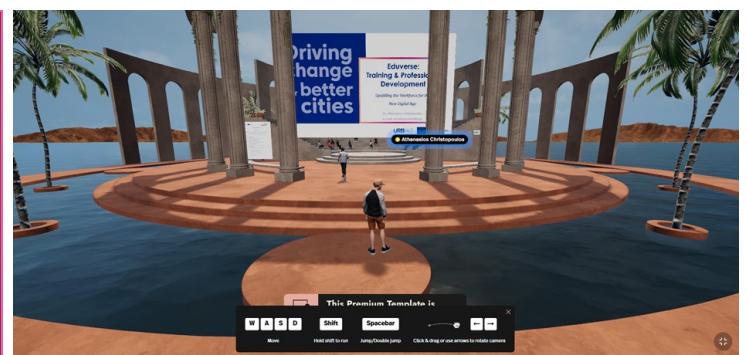
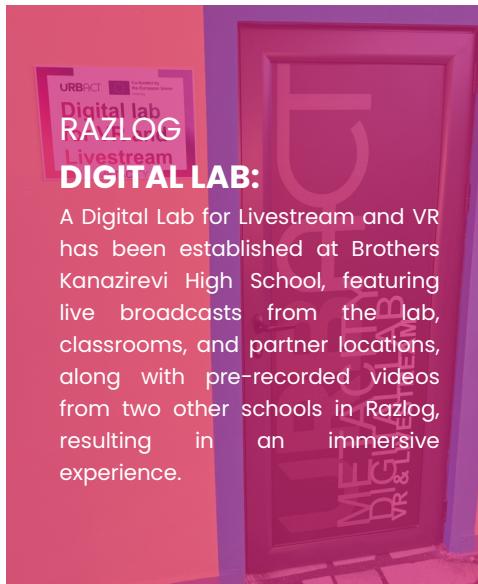
The VR Tour at Buda Castle offers an immersive 1.5-hour experience through 7 key historical periods in Budapest's history, combining virtual reality and multilingual audioguides to bring pivotal events to life in an unforgettable, globally unique tour.



### NEVERS

#### VIRTUAL ARENA:

This multi-activity leisure centre in Nevers offers a variety of VR experiences, including free roaming, escape rooms, multiplayer booths, and arcade games, all designed for immersive entertainment.





05

# STRATEGY FOR METACITY

metacity fundão action plan



## 5.1 TESTING ACTION

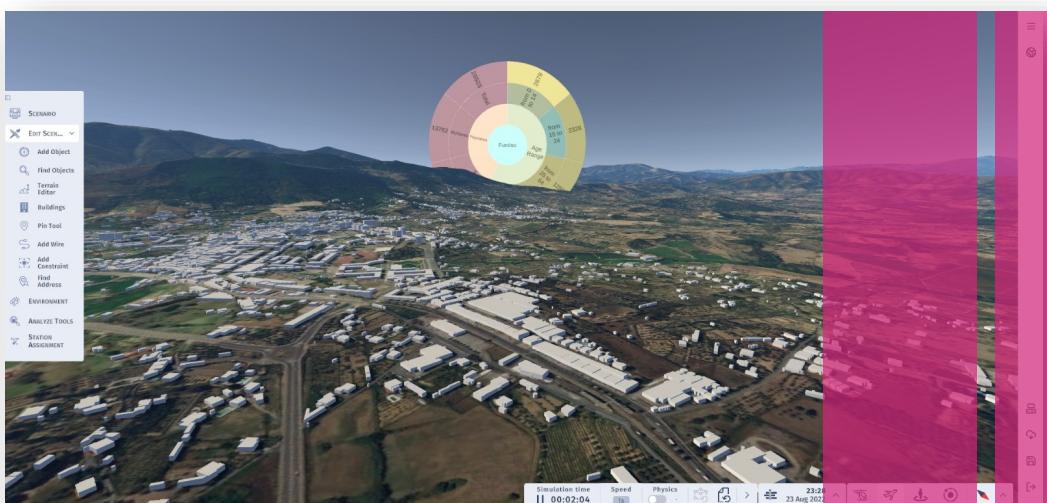
### Testing Action: Digital Twin for Urban Planning in Fundão

The Testing Action (TA) developed under the METACITY project represents a major milestone in Fundão's digital transition and smart governance strategy. Inspired by the Metacity Digital Twin City Workshop, particularly the session led by Sølve Fauskevåg (Augment City), this pilot demonstrated the transformative potential of Digital Twin technology for small and medium-sized cities. The initiative aimed to test how integrated spatial data, simulation tools, and predictive analytics can support data-driven decision-making, enhance urban management, and improve communication with citizens and local stakeholders.

The Digital Twin prototype enables a unified visualisation of the municipality's territory and assets, creating a dynamic environment for analysing, planning, and monitoring urban systems. It sets the foundation for a new generation of digital governance tools capable of increasing efficiency, sustainability, and public engagement. However, the testing phase also revealed a number of technical and structural limitations that should be addressed in future iterations to ensure the scalability and long-term value of the solution.

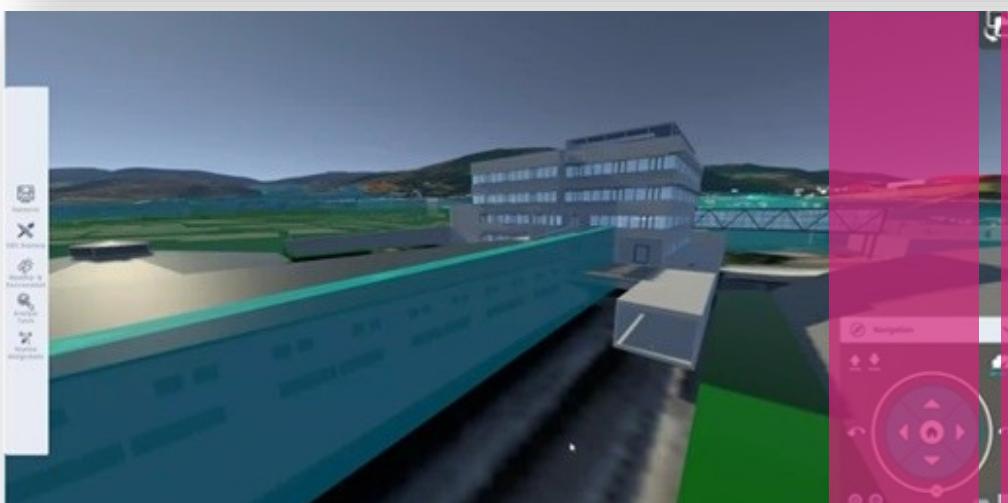
#### Key Urban Planning Dimensions

The Testing Action focused on **three main urban planning dimensions**, each demonstrating how digital modelling can enhance local decision-making: .



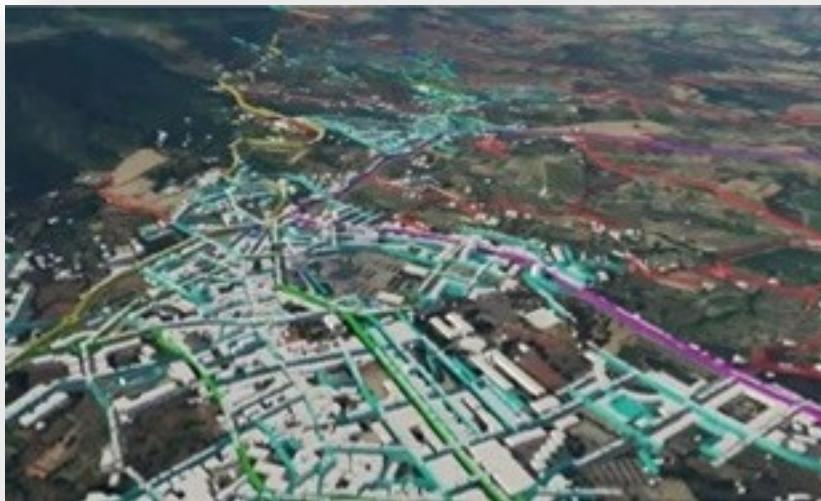
#### Population Density Mapping

Using heatmaps to visualise demographic trends and support evidence-based housing, infrastructure, and public service planning.



#### Energy Consumption Analytics

Assessing energy performance of municipal buildings to identify efficiency opportunities and cost reductions.



## Pedestrian Accessibility to Public Transport

Analysing walkability and connectivity to pinpoint accessibility gaps and propose mobility improvements.

These dimensions were selected for their relevance to Fundão's ongoing urban challenges and for their potential to demonstrate the practical value of Digital Twin technology in a small-city context.

### Visualisation and User Experience

While the platform successfully depicts the territory, some limitations in visual quality and navigation remain evident, particularly in more complex or data-dense contexts. The user experience is not yet fully immersive, which may constrain its adoption in participatory processes and collaborative urban design. Improving rendering performance, user interface accessibility, and the ability to explore layers of information interactively will be key to ensuring that both technical users and citizens can benefit from a seamless and engaging experience.

### Integration with Real-Time Data

The current version of the Digital Twin is not yet fully prepared to ingest or visualise real-time data from IoT systems, mobility sensors, or environmental monitoring networks. This restricts its ability to operate as a true "living mirror" of the city, limiting its relevance for decision-making in dynamic scenarios. The next development phase will therefore focus on strengthening interoperability with municipal databases, integrating real-time streams, and ensuring compatibility with the data collected by other smart city infrastructures.

### Virtual and Augmented Reality Capabilities

The Testing Action identified the need to expand the Digital Twin's functionality through Virtual and Augmented Reality (VR/AR) technologies. These tools can significantly enhance participation and training opportunities, allowing users to experience future urban scenarios, evaluate architectural designs, and simulate energy or mobility interventions in an immersive way. Embedding VR/AR interfaces into the Digital Twin will facilitate the engagement of planners, students, and citizens, transforming the platform into an interactive co-creation and learning environment.

### Licensing and Solution Openness

The prototype is currently based on a proprietary model, which creates dependency on a single provider and limits future flexibility in terms of customisation, integration, and cost management. For long-term sustainability, Fundão intends to explore open-source or hybrid alternatives that promote interoperability, encourage local innovation, and allow continuous development through partnerships with universities and regional ICT companies. This approach will also facilitate the integration of the Digital Twin into broader European digital ecosystems.

## Implementation Timeline and Budget

The Testing Action was designed as a short-term experimental initiative to validate the feasibility and usability of the Digital Twin concept before scaling it across the municipality.

PHASE	TIMELINE	KEY ACTIVITIES
<b>Phase 1</b>	January – March 2025	Definition of use cases; identification of pilot areas; collection of demographic, energy, and mobility data.
<b>Phase 2</b>	April – July 2025	Development and integration of datasets; visualisation testing; refinement of analytical tools.
<b>Phase 3</b>	August – October 2025	Model validation; training of municipal staff; internal evaluation of usability and data accuracy.
<b>Final Implementation</b>	November – December 2025	Full integration into municipal workflows; dissemination of results and engagement with stakeholders.



**Total budget:** €16,500 – covering technological development, data integration, staff training, and dissemination activities.

## Conclusion and Next Steps

The Digital Twin developed through this Testing Action demonstrates Fundão's capacity to implement advanced digital solutions adapted to a rural, low-density context. It highlights the potential of technology to support evidence-based policy-making, participatory governance, and cross-sectoral collaboration. However, to ensure greater impact, future development will prioritise the following:

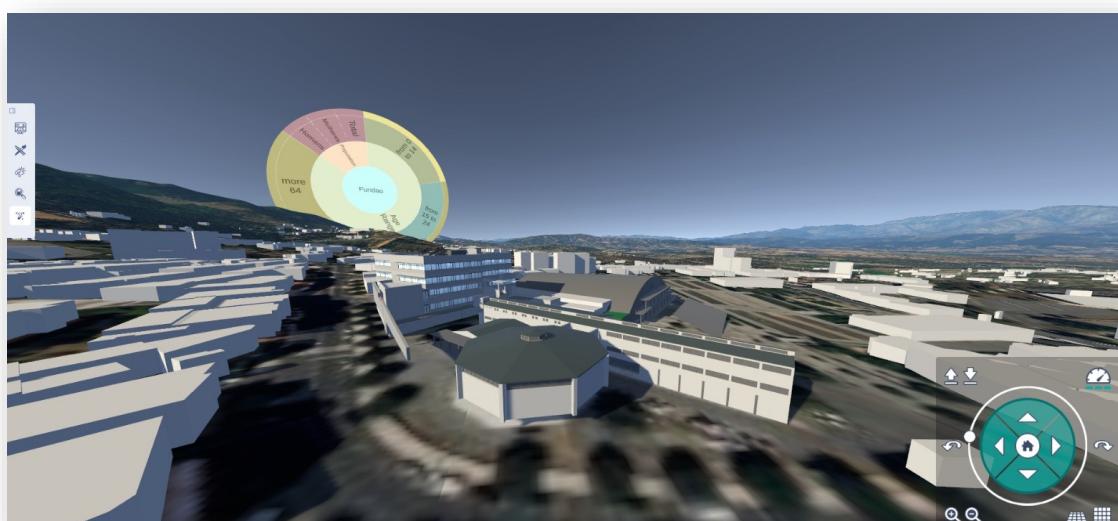
Enhanced visualisation and interactivity, improving accessibility and usability.

Integration of real-time data from IoT and environmental sources.

Expansion of VR/AR functionalities to support immersive urban planning.

Adoption of open and interoperable models, reducing vendor dependency and encouraging innovation.

**The Testing Action provides a solid foundation upon which Fundão will continue to build through its Integrated Action Plan (IAP), scaling the Digital Twin across the entire municipality and reinforcing its position as a European reference for smart, inclusive, and resilient digital governance.**



## 5.2 INTEGRATED ACTION PLAN

THE INTEGRATED ACTION PLAN (IAP) FOR THE MUNICIPALITY OF FUNDÃO HAS BEEN DEVELOPED THROUGH A COLLABORATIVE PROCESS INVOLVING LOCAL STAKEHOLDERS DURING MULTIPLE MEETINGS OF THE URBACT LOCAL GROUP (ULG). THIS PROCESS ENSURED THAT THE PERSPECTIVES AND NEEDS OF DIFFERENT LOCAL ACTORS WERE REFLECTED IN THE FINAL PLAN. ADDITIONALLY, THE IAP WAS ENRICHED WITH INSIGHTS AND BEST PRACTICES DRAWN FROM THE EXPERIENCES OF FUNDÃO'S EUROPEAN PARTNERS IN THE METACITY PROJECT.

THE IAP ALIGNS WITH THE STRATEGIC VISION AND METHODOLOGICAL FRAMEWORKS RECOMMENDED BY URBACT IV, EMPHASIZING DIGITAL TRANSFORMATION, SUSTAINABLE URBAN DEVELOPMENT, AND PARTICIPATORY GOVERNANCE. IT SERVES AS A STRUCTURED ROADMAP TO REINFORCE FUNDÃO'S ROLE AS AN INNOVATION-DRIVEN SMART CITY, INTEGRATING DIGITAL TWIN TECHNOLOGY, VIRTUAL REALITY (VR), GAMING DEVELOPMENT, AND HIGH-PERFORMANCE LEARNING ENVIRONMENTS.

### Challenges, Strategic Vision, and Expected Results



Fundão faces challenges related to the digital inclusion of its citizens, sustainable mobility, urban planning, and the need for innovative cultural and leisure opportunities. The IAP addresses these challenges by integrating smart technologies, enhancing participatory governance, and fostering economic growth through digital transformation initiatives.

The strategic vision is to establish Fundão as a leading digital innovation hub that leverages smart city solutions to enhance the quality of life for its residents. This includes optimizing urban services, engaging citizens in governance processes, and fostering an inclusive and sustainable digital ecosystem.

Expected results include:

Increased civic participation through digital governance tools.

Improved smart city infrastructure and urban planning capabilities.

Enhanced public transport and mobility efficiency.

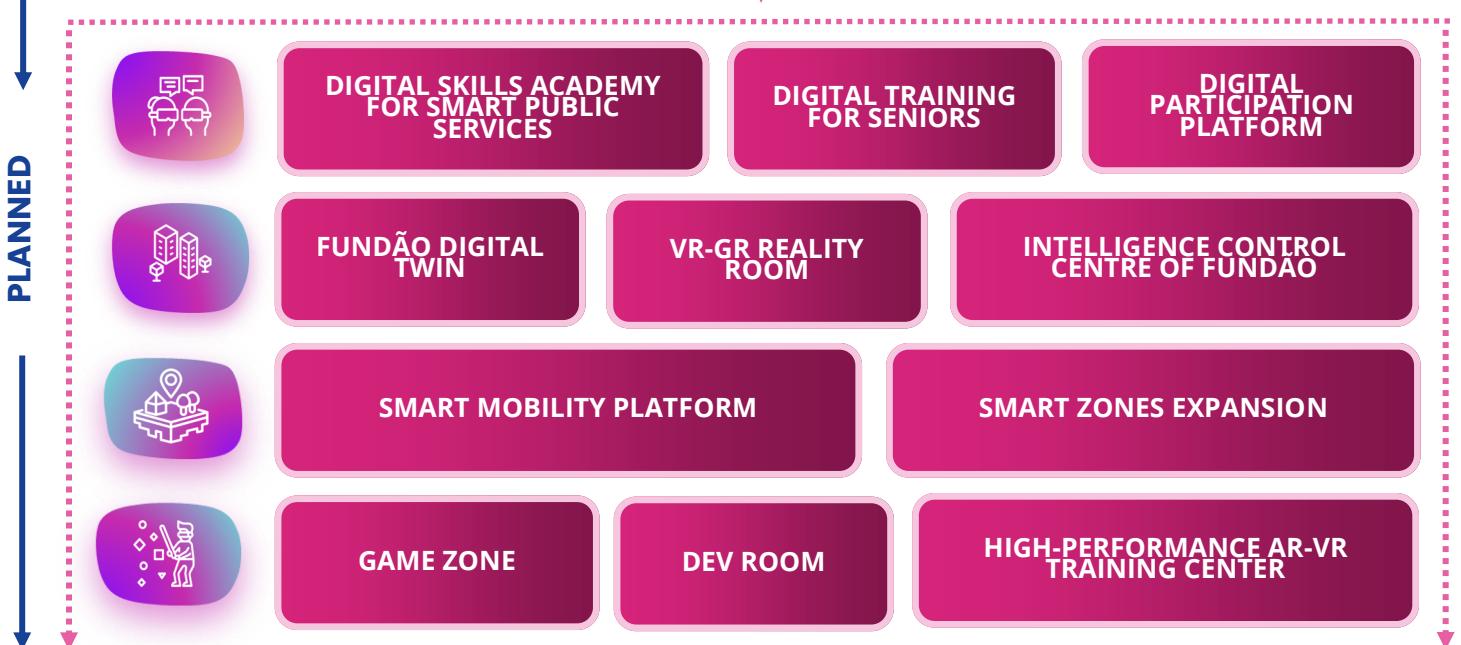
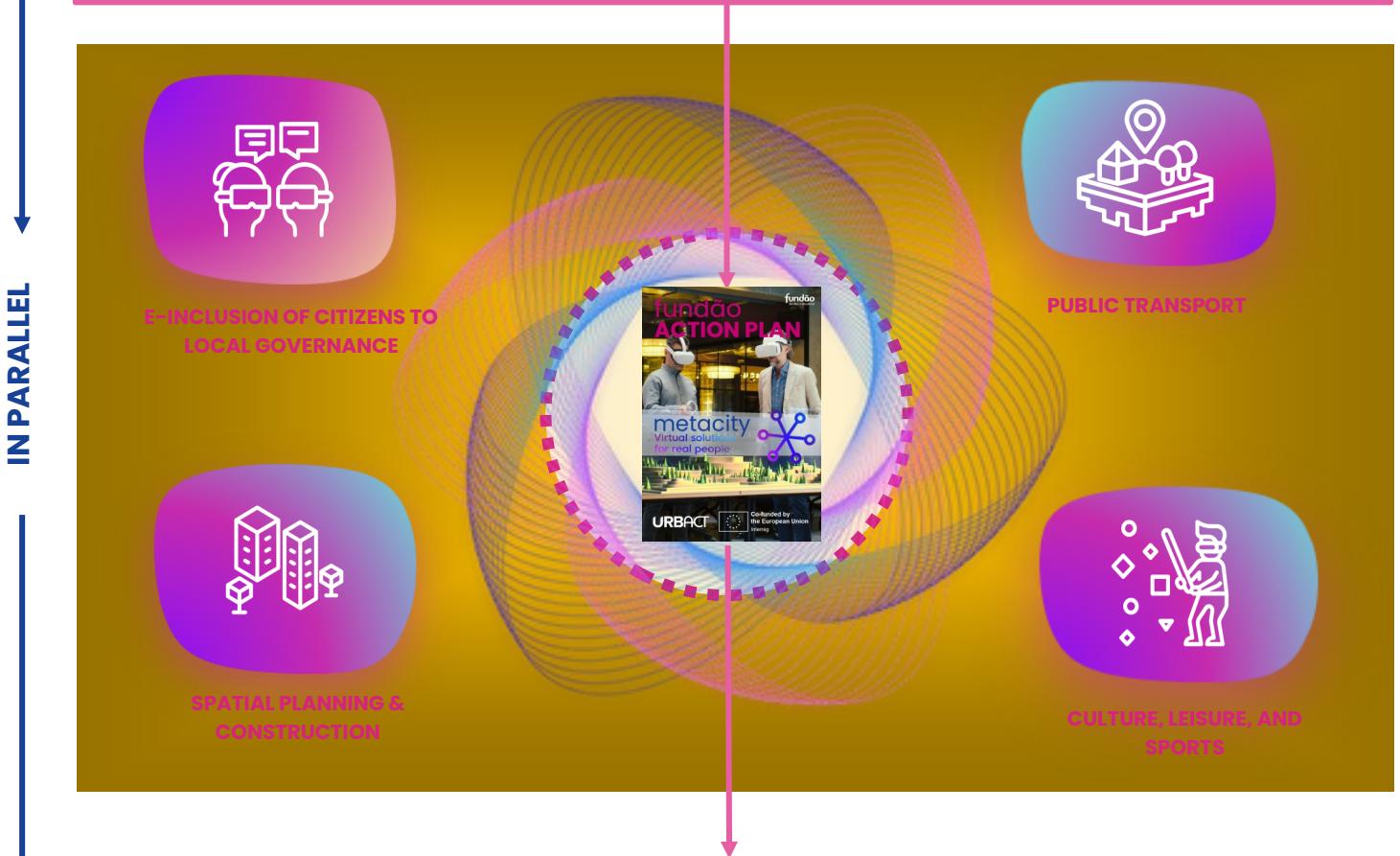
Development of innovative cultural and leisure initiatives leveraging digital technologies.

### Existing Actions and Planned Initiatives



The action plan presents a structured approach, detailing both existing actions that have already been implemented and planned initiatives that will be developed in parallel. The following tables outline these elements according to Fundão's strategic pillars.







# E-INCLUSION OF CITIZENS TO LOCAL GOVERNANCE



## TOPIC

### E-INCLUSION OF CITIZENS TO LOCAL GOVERNANCE

## MAIN OBJECTIVE

Enhance digital inclusion, ensuring that all citizens, including seniors, public administration employees, and vulnerable groups can effectively engage with digital accessible governance through and inclusive digital tools and programs.

## VISION

To create a digitally inclusive society where all citizens can participate in decision-making processes and smart city services

## BACKGROUND

The CAET will have a dedicated training room by 2026, providing structured training opportunities for digital engagement. This training space will focus on fostering digital skills for all age groups, including seniors, municipal employees, and youth, ensuring comprehensive digital literacy

## INSPIRATION

Inspired by successful European models of digital inclusion and public engagement platforms, particularly drawing from the experiences of Nevers (France) in digital citizen participation, Újbuda (Hungary) in senior digital literacy programs, and Písek (Czech Republic) in integrating metaverse applications into governance strategies.

ACTION TITLE & SHORT DESCRIPTION	INTEND RESULT	RESOURCES & ASSETS	RESPONSIBLE ORGANISATION / KEY PARTNERS
<p><b>1. DIGITAL SKILLS ACADEMY FOR SMART PUBLIC SERVICES</b></p> <p>This action will establish a permanent training programme within the municipality to systematically upgrade the digital competences of civil servants and frontline public employees.</p> <p>The academy will respond to the growing demand for smart, efficient and human-centred public services by offering structured learning cycles in areas such as e-governance, digital communication, data protection, interoperability, open data, and immersive technologies.</p> <p>Particular emphasis will be placed on applying <b>AI and Digital Twin tools</b> in administrative planning, service delivery and citizen engagement. The training will be modular, using blended learning (in-person and digital), peer-to-peer mentoring, and simulation-based exercises that reflect real-world administrative workflows.</p> <p>The academy will function as a long-term capacity-building mechanism to ensure the municipality remains at the forefront of digital innovation and governance transformation.</p>	<p>Improved digital capabilities across all municipal departments.</p> <p>Efficient and citizen-centred service delivery, aligned with Fundão's smart governance model.</p> <p>Higher institutional readiness for emerging technologies, including AI and immersive environments.</p> <p>Strengthened internal capacity to co-design, implement, and manage digital transition policies.</p>	<p>Training facilities at CAET equipped with digital infrastructure.</p> <p>Modular content covering e-governance, cybersecurity, immersive tools and AI.</p> <p>Simulated training environments using Fundão's Digital Twin prototype.</p> <p>Digital learning platforms and internal communication tools.</p> <p>Pedagogical support from higher education institutions and digital specialists.</p>	<p>Municipality of Fundão</p> <p>Partners:</p> <p>University of Beira Interior (training content and certification)</p> <p>CCDRC – Regional development support</p> <p>DeepNeuronic and Devoteam (technical expertise and mentoring)</p>
<p><b>2. DIGITAL TRAINING FOR SENIORS</b></p> <p>This action promotes digital inclusion among the elderly population through targeted training sessions designed to demystify technology and build confidence in using digital services.</p> <p>Many senior citizens face significant barriers in accessing online information and services, which leads to exclusion and inequality.</p> <p>The training will address practical digital skills, including safe internet browsing, accessing e-health and municipal platforms, communicating via digital tools, and participating in online consultations.</p> <p>The action will not only reduce isolation and dependence but also promote active citizenship and social connection in an increasingly digital society.</p>	<p>Reduction in digital exclusion among the elderly.</p> <p>Increased autonomy and well-being for senior residents.</p> <p>Broader participation in public life and access to smart public services.</p> <p>Reinforcement of social cohesion and intergenerational exchange in the community.</p>	<p>Accessible venues across the municipality (CAET, libraries, parish halls).</p> <p>Senior-friendly digital devices (tablets, smartphones) and printed guides.</p> <p>Visual and audio materials adapted to different literacy levels.</p> <p>Volunteer-based training model with support from schools and local associations.</p> <p>Community-based communication and outreach tools.</p>	<p>Municipality of Fundão,</p> <p>Partners:</p> <p>Local Senior Associations</p> <p>Fundão Professional School</p> <p>University of Beira Interior (senior-focused research)</p>

**DIGITALISATION** - This action is designed to equip municipal employees with the skills and knowledge to lead and sustain digital transformation processes within local government structures.

**DIGITALISATION** - This action directly addresses digital exclusion by enabling older citizens—often an overlooked demographic—to access, understand, and benefit from digital public services and technologies, thus supporting more inclusive digital transformation. .

ACTION TITLE & SHORT DESCRIPTION	INTEND RESULT	RESOURCES & ASSETS	RESPONSIBLE ORGANISATION / KEY PARTNERS
<p><b>3. DIGITAL PARTICIPATION PLATFORM</b></p> <p>This action focuses on the creation and implementation of a digital platform to enable direct, inclusive and transparent citizen participation in local governance.</p> <p>The platform will allow residents to submit proposals, vote on participatory budgeting processes, access open-data dashboards, and monitor municipal initiatives in real time. A strong emphasis will be placed on accessibility, interactivity, and connection to immersive environments such as Fundão's Digital Twin.</p> <p>The action also includes structured awareness-raising and training sessions to empower citizens with the necessary digital skills to engage confidently and meaningfully in democratic processes.</p> <p>Particular attention will be given to engaging youth, seniors, migrants, and underrepresented communities.</p>	<p>Increased citizen participation in local decision-making through accessible digital tools.</p> <p>Strengthened transparency and accountability in municipal governance.</p> <p>Broader inclusion of youth, elderly, migrants and underrepresented groups in civic life.</p> <p>Enhanced interaction between citizens and the municipality using immersive technologies.</p> <p>Improved trust in public institutions and data-driven policy-making through open governance platforms.</p>	<p>Customised and accessible online platform with multilingual interface.</p> <p>Integration with Fundão's Digital Twin and immersive participation features (e.g., VR).</p> <p>Interactive tools: map-based commenting, real-time voting, project monitoring.</p> <p>Awareness and capacity-building campaigns.</p> <p>Community training sessions and onboarding materials.</p>	<p>Municipality of Fundão</p> <p>Partners:</p> <p>Cyango, Mirage Virtual Reality, The DanyalGil Company – platform development and XR integration</p> <p>Fundão Youth Council – youth outreach and civic engagement</p> <p>University of Beira Interior – co-design and research on participation tools</p>



**DIGITALISATION** – This action directly supports digital transformation in local governance by embedding user-centred digital tools for participation, open-data access, and real-time feedback. By integrating immersive technology and fostering digital citizenship, the platform ensures that civic engagement becomes more inclusive, transparent, and technologically enabled.

ACTION TITLE	TIMESCALE					BUDGET	MAIN FUNDING SOURCES	TYPE OF INVESTMENT
	2026	2027	2028	2029	2030			
<b>1. DIGITAL SKILLS ACADEMY FOR SMART PUBLIC SERVICES</b>						60.000,00 €	ERDF / PT2030 / National Admin Training Funds	Human Capital / Institutional Capacity
<b>2. DIGITAL TRAINING FOR SENIORS</b>						50.000,00 €	FSE+ / PT2030 Inclusion / Local Budget	Social Inclusion / Digital Literacy
<b>3. DIGITAL PARTICIPATION PLATFORM</b>						90.000,00 €	ERDF / CEF Digital / Smart Cities / Local Funds	Digital Infrastructure / Civic Tech

# 2

## SMART SPATIAL PLANNING AND INFRASTRUCTURE

### TOPIC

### SMART SPATIAL PLANNING AND INFRASTRUCTURE



### MAIN OBJECTIVE

To develop a smart, efficient, and sustainable urban environment by leveraging digital twin technologies, real-time data, and integrated urban planning solutions.

### VISION

To establish Fundão as a leader in digital urban transformation, ensuring well-coordinated spatial planning that optimizes resources, minimizes environmental impact, and enhances citizens' quality of life.

### BACKGROUND

Fundão is undergoing rapid digital transformation, with the planned establishment of a Smart City Control Room and the expansion of the Digital Twin of the Municipality. The CAET will integrate spatial planning technologies by 2026 to enable predictive urban planning.

### INSPIRATION

Inspired by best practices from Barcelona (Spain) in digital twin implementation, Amsterdam (Netherlands) in sustainable urban planning, and Vienna (Austria) in integrated infrastructure and construction management.

ACTION TITLE & SHORT DESCRIPTION	INTEND RESULT	RESOURCES & ASSETS	RESPONSIBLE ORGANISATION / KEY PARTNERS
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#### 4. FUNDÃO DIGITAL TWIN – INTEGRATED PLATFORM FOR PREDICTIVE AND INCLUSIVE URBAN PLANNING

This action aims to evolve the municipality's existing Digital Twin prototype—developed during the Testing Action phase—into a fully operational and scalable platform for dynamic urban planning and monitoring.

The upgraded version will incorporate multiple real-time and geospatial data layers, such as land use, building performance, traffic flows, green infrastructure, and environmental indicators. Through this system, planners, technical staff and citizens will be able to simulate future urban scenarios, evaluate the impacts of different policy decisions, and optimise resource allocation using AI-supported analysis.

The platform will also serve as a planning interface for participatory processes, ensuring that spatial development becomes more transparent, inclusive, and data-informed.

This digital infrastructure will act as a cornerstone for Fundão's long-term smart city strategy.

Improve strategic planning and resource allocation through real-time analytics.

Foster a data-driven culture within the municipality.

Strengthen resilience to environmental, social and infrastructure risks.

Empower public services with AI-enabled forecasting and urban diagnostics.

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Existing Digital Twin prototype from the Testing Action.

GIS and cloud-based platforms for spatial data integration

AI-powered simulation tools (urban heat, walkability, mobility)

Sensor and IoT infrastructure (for environmental and traffic data)

Open-source visualisation dashboards and public access tools

Municipality of Fundão

Partners:

University of Beira Interior (data modelling and academic support)

CAET (pilot environment and testbed)

Local ICT companies and urban data analysts

CCDRC and external digital twin consultants



**DIGITALISATION** – The core objective is to enable data-driven planning through a real-time digital platform integrating spatial and environmental data.

#### 5. VR-GR REALITY ROOM – IMMERSIVE URBAN DESIGN AND CO-CREATION LABORATORY

This action will create an immersive planning lab hosted at the CAET, equipped with Virtual Reality (VR) and Gamified Reality (GR) tools to visualise and test urban design ideas before they are implemented.

The space will be used by municipal planners, architecture and engineering students, young people, and residents to interactively explore different planning scenarios—including street redesigns, housing typologies, energy-efficient infrastructure, and climate adaptation measures.

The VR-GR Reality Room will also be used for capacity-building activities, supporting digital upskilling in spatial planning and visualisation.

By bringing 3D environments and simulation tools into public dialogue, this action aims to increase the transparency, creativity and inclusiveness of the urban design process—especially for people less familiar with technical plans or spatial documents.

Improve participatory urban planning using immersive and engaging tools.

Equip local professionals and students with advanced digital visualisation skills.

Increase transparency and trust through visual simulation of planning decisions.



CAET facilities equipped for VR and immersive display

High-performance computing systems and VR headsets

Gaming and simulation software (Unreal Engine, Unity)

3D urban and architectural models based on Fundão's planning data

Custom scenarios co-designed with citizens and planners

Municipality of Fundão,

Partners:

Mirage Virtual Reality and local immersive tech developers

University of Beira Interior

Fundão Urban Planning Office (data and scenario validation)

Fundão Schools Group

**GENDER EQUALITY AND EQUAL OPPORTUNITIES** – This immersive planning lab promotes inclusive access to urban design processes through VR and gamified tools. It is particularly focused on enabling participation from traditionally underrepresented groups—such as women, youth, migrants, and people with low technical literacy—by offering accessible and visual alternatives to conventional spatial planning.

ACTION TITLE & SHORT DESCRIPTION	INTEND RESULT	RESOURCES & ASSETS	RESPONSIBLE ORGANISATION / KEY PARTNERS
<p><b>6. INTELLIGENCE CONTROL CENTRE OF FUNDÃO – REAL-TIME URBAN OPERATIONS HUB</b></p> <p>This action involves the design and activation of a municipal control centre for integrated city operations. By consolidating real-time data from mobility networks, energy grids, waste management, environmental sensors, and public infrastructure, the Intelligence Centre will function as the operational brain of the city—enhancing situational awareness and interdepartmental coordination.</p> <p>It will support early detection of anomalies (e.g. air pollution peaks, traffic bottlenecks, infrastructure failures), optimise service delivery, and enable predictive maintenance.</p> <p>The Centre will also interact with the Digital Twin and VR systems, allowing decision-makers to visualise live data and test responses in simulated environments. Ultimately, this action aims to shift municipal management from reactive to proactive, improving efficiency, sustainability, and responsiveness to citizens' needs.</p>	<p>Strengthen proactive urban governance and operational efficiency.</p> <p>Increase responsiveness to emergencies and infrastructure failures.</p> <p>Provide a live urban data platform for cross-sector coordination.</p> <p>·</p>	<p>Integrated control room and monitoring infrastructure</p> <p>Real-time data feeds from mobility, energy, waste and environment</p> <p>IoT sensors and smart grid equipment</p> <p>Operational dashboards with predictive analytics tools</p> <p>Secure network infrastructure and interoperability protocols</p>	<p>Municipality of Fundão</p> <p>Partners:</p> <p>Local infrastructure and utilities providers (mobility, waste, energy)</p> <p>Security and emergency response teams</p> <p>Tech integrators specialising in smart city platforms</p> <p>UBI and national innovation agencies (e.g. ANI)</p>



**ENVIRONMENTAL SUSTAINABILITY** – The control centre will consolidate and analyse real-time data related to mobility, energy, environment, and infrastructure—enabling proactive management of urban systems and early responses to environmental challenges. The platform supports the city's ecological resilience, resource efficiency and emission reduction goals, making environmental sustainability its most significant area of impact, despite also advancing digital governance and social monitoring.

ACTION TITLE	TIMESCALE					BUDGET	MAIN FUNDING SOURCES	TYPE OF INVESTMENT
	2026	2027	2028	2029	2030			
<b>4. FUNDÃO DIGITAL TWIN</b>						120.000,00€	ERDF / PT2030 / Horizon Europe / Local Budget	Digital Infrastructure / Data Governance
<b>5. VR-GR REALITY ROOM</b>						70.000,00€	FSE+ / PT2030 Innovation / National Digital Transition Funding	Immersive Tech / Spatial Literacy
<b>6. INTELLIGENCE CONTROL CENTRE OF FUNDÃO</b>						150.000,00€	ERDF / CEF Digital / Smart Cities Mission / Local Public Funds	Urban Intelligence / Environmental Monitoring

# 3

## PUBLIC TRANSPORT AND SMART MOBILITY

### TOPIC

### MAIN OBJECTIVE

### VISION

### BACKGROUND

### INSPIRATION

#### PUBLIC TRANSPORT AND SMART MOBILITY

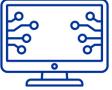
To develop an efficient, sustainable, and digitally integrated public transport system, enhancing connectivity and mobility for all citizens.

To transform Fundão into a smart mobility hub with seamless multimodal transportation, reduced emissions, and enhanced accessibility for all users.

Fundão, a small city, faces challenges in financing and maintaining public transport, particularly in connecting urban and rural areas. A funding deficit of €2.5 million affects bus services, further strained by high school transport costs. To address these issues, a pilot project is testing smart mobility solutions, including an integrated digital platform. Auto Transportes do Fundão (A.T.F.) remains crucial in regional mobility. By 2026, smart transport hubs will modernise the network, improving accessibility and efficiency.

Härnösand (Sweden) serves as a model in sustainable mobility by investing in electric and autonomous public transport, as well as rural mobility integration. Additionally, Helsinki (Finland) provides a reference for Mobility-as-a-Service (MaaS), Nevers (France) has successfully introduced electronic ticketing, mobile ticket validation, and an on-demand transport service ('Tibus') to improve accessibility and efficiency.



ACTION TITLE & SHORT DESCRIPTION	INTEND RESULT	RESOURCES & ASSETS	RESPONSIBLE ORGANISATION / KEY PARTNERS
<p><b>7. SMART MOBILITY PLATFORM – A DIGITAL MOBILITY ECOSYSTEM CONNECTING URBAN AND RURAL FUNDÃO</b></p> <p>This action aims to create a fully integrated and user-centred digital mobility platform that serves as a central access point for planning and using public and shared transport services across the municipality of Fundão.</p> <p>With a strong focus on low-density and rural areas, the platform will coordinate local and school bus services, paratransit options, walking and cycling routes, and—at later stages—future shared mobility services such as e-bikes or on-demand shuttles.</p> <p>The platform will function as a Mobility-as-a-Service (MaaS) tool, accessible via mobile and desktop applications, offering real-time information, route planning, mobile ticketing, notifications of delays or cancellations, and personal travel profiles (e.g. for students, seniors, or people with reduced mobility). Special attention will be given to adapting the interface to different literacy levels and to residents without frequent digital access.</p> <p>The action is a response to the municipality's current challenges: limited funding for traditional transport solutions (€2.5M annual deficit), spatial fragmentation across 23 dispersed parishes, and high dependence on private vehicles. By offering a lightweight but high-impact digital solution, Fundão seeks to improve transport equity, reduce car use, and foster sustainable rural–urban connectivity.</p> <p>The platform will be piloted in connection with the launch of new mobility hubs (2026–2027) and linked to other digital services such as the Digital Twin and Control Centre.</p>	<p>Increase accessibility and reliability of public and school transport, particularly in rural parishes.</p> <p>Provide a unified, easy-to-use digital tool for planning, booking and navigating mobility options.</p> <p>Reduce car dependency, especially among young people and vulnerable users without private vehicles.</p> <p>Support better-informed mobility policies through digital data collection and analysis.</p> <p>Promote multimodal and sustainable transport habits across the municipality.</p> <p>.</p> 	<p>Existing partnerships with Auto Transportes do Fundão (ATF) and school transport providers.</p> <p>Mobile and web-based platform (to be co-developed with local tech partners).</p> <p>Digital map data, timetables, and route network information.</p> <p>Integration capacity with future shared mobility services (e.g., e-bikes or demand-responsive services).</p> <p>Mobility hubs being planned under Interreg projects (starting in 2026).</p> <p>CAET as digital testing and co-creation space.</p>	<p>Municipality of Fundão Partners:</p> <p>Auto Transportes do Fundão (ATF) – regional bus operator</p> <p>CAET – hosting testing environment and user engagement</p> <p>Local ICT companies – platform development and support</p> <p>Fundão Schools Group – engagement of youth and school mobility</p> <p>CCDRC – co-financing and regional transport coordination</p>

**DIGITALISATION** – Digitalisation is the central enabler of this action, allowing the municipality to rethink mobility provision through an integrated, data-driven and user-friendly platform. By applying digital tools—such as real-time route planning, mobile ticketing, and predictive analytics—this action replaces fragmented, paper-based and inaccessible information with a seamless digital experience adapted to the needs of a rural, low-density context.

The platform will not only simplify the user journey but also provide valuable data for public authorities to monitor service performance, identify accessibility gaps, and support evidence-based policy. It enables the municipality to optimise limited mobility resources, adapt routes to real demand, and experiment with new models such as demand-responsive transport.

Moreover, by co-designing the platform with users—including youth, seniors and people with disabilities—it also promotes inclusive digital transformation. It strengthens citizens' ability to interact with digital public services and encourages behavioural change toward more sustainable transport choices..

ACTION TITLE & SHORT DESCRIPTION	INTEND RESULT	RESOURCES & ASSETS	RESPONSIBLE ORGANISATION / KEY PARTNERS
<p><b>8. SMART ZONES EXPANSION – SCALING INTELLIGENT URBAN MOBILITY FROM PRAÇA AMÁLIA RODRIGUES TO THE WIDER CITY</b></p> <p>Building on the Route 25 demonstrator at Praça Amália Rodrigues, this action proposes the design and phased implementation of Smart Urban Mobility Zones across key areas of Fundão. It will replicate the minimalist, tech-enabled model of the pilot—integrating sensor-based parking management, smart lighting, EV charging, and environmental monitoring—into new priority zones such as:</p> <ul style="list-style-type: none"> <li>- The intermodal hub next to the train station</li> <li>- School perimeters with traffic calming needs</li> <li>- Health centre surroundings and civic service nodes</li> <li>- Neighbourhood entrances or mobility corridors to rural parishes</li> </ul> <p>The expansion will include a co-design component with local residents and businesses, and a monitoring dashboard linked to the Intelligence Control Centre. This ensures adaptive management and helps define new policies such as low-emission zones or smart delivery areas. The goal is not just to install technology, but to embed smart, sustainable and participatory mobility solutions in the daily urban fabric..</p>	<p>Replicate and scale the Route 25 pilot to new urban zones based on performance data.</p> <p>Promote a connected network of smart public space infrastructure city-wide.</p> <p>Reduce emissions, improve safety and enhance walkability through data-informed design.</p> <p>Involve citizens in selecting and shaping priority intervention areas.</p> <p>Strengthen Fundão's capacity to lead in rural smart mobility innovation</p>	<p>Learnings and infrastructure from Route 25 pilot (sensors, EV stations, smart poles).</p> <p>GIS and mobility data from Fundão Digital Twin.</p> <p>Municipal land and public space in target zones.</p> <p>Stakeholder engagement tools (surveys, workshops).</p> <p>Urban technicians and innovation staff from CAET and the municipality.</p> <p>Integration with Fundão's Smart Mobility Platform and Control Centre.</p>	<p>Municipality of Fundão</p> <p>Partners:</p> <p>Route 25 consortium (technical and strategic alignment)</p> <p>Local residents and business associations</p> <p>Fundão Schools Group (for school zone pilots)</p> <p>National Smart Cities Network</p> <p>CCDRC and PT2030 / ERDF fund managers</p>



**ENVIRONMENTAL SUSTAINABILITY** – This action consolidates and expands a model that reduces urban emissions, enhances energy efficiency, and reclaims space for people. It is also supported by Digitalisation through real-time data and smart systems, and integrates Equality by involving diverse users in zone definition and monitoring.

ACTION TITLE	TIMESCALE					BUDGET	MAIN FUNDING SOURCES	TYPE OF INVESTMENT
	2026	2027	2028	2029	2030			
<b>7. SMART MOBILITY PLATFORM</b>						180.000,00€	ERDF / PT2030 / Local Budget / CCDRC	Digital Infrastructure / Public Service Access
<b>8. SMART ZONES EXPANSION</b>						300.000,00€	PRR / Route 25 / ERDF / Smart Cities Portugal / Local Funds	Sustainable Urban Mobility / Public Space Renewal



## TOPIC

## MAIN OBJECTIVE

## VISION

## BACKGROUND

## INSPIRATION

### CULTURE, LEISURE, AND SPORTS INNOVATION

To harness digital technologies to expand cultural access, support creative industries, and promote well-being through innovative leisure and sports experiences that engage citizens and position Fundão as a rural hub of digital culture and immersive recreation.

Fundão envisions itself as a pioneer among small cities by combining heritage, creativity, and digital innovation. By establishing dedicated spaces and programmes that blend physical and virtual experiences, the municipality aims to empower youth, attract digital talent, and transform leisure and culture into inclusive, participatory, and forward-looking domains. This vision reinforces community bonds and contributes to territorial cohesion through smart, people-centred innovation.

Fundão has long invested in digital infrastructure and inclusion, but access to innovative cultural and sports activities remains uneven, especially in rural parishes. The municipality faces challenges such as youth outmigration, limited creative employment opportunities, and underused leisure facilities. However, local strengths—including a dynamic youth population, strong school network, and active cultural ecosystem—provide fertile ground for piloting immersive formats such as AR/VR, digital storytelling, and gamification in both cultural and sports settings. The CAET and existing networks around video games, coding and digital education serve as key enablers for this transformation.

Nevers (France) and its "Virtual Arena" and e-sports initiatives, showing how small cities can become creative industry hubs through investment in gaming and digital culture.

Härnösand (Sweden) and its use of VR spaces in cultural engagement and interactive public services.

The integration of AR/VR training tools in physical education and rehabilitation programmes in Nordic countries.



ACTION TITLE & SHORT DESCRIPTION	INTEND RESULT	RESOURCES & ASSETS	RESPONSIBLE ORGANISATION / KEY PARTNERS
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### 9. GAME ZONE – FOSTERING YOUTH DIGITAL CREATIVITY AND LOCAL GAMING ECOSYSTEMS

This action will establish a dedicated space within CAET for experimentation, socialisation and creative expression through digital games. The Game Zone will function as a public hub for young people and creative citizens to access gaming technologies, participate in workshops, and explore game design as a form of digital culture and innovation.

It will also serve as an entry point for education in game development, storytelling, 3D design and coding, in collaboration with schools and digital media educators. By connecting local creative talent with national and European opportunities in the gaming sector, the action aims to position Fundão as a reference in rural digital culture.

Activities will include e-sport tournaments, co-creation labs, and thematic events that promote inclusion and cultural identity through gamification.

Foster digital creativity and inclusive access to gaming culture among youth.

Support the development of local talent in game design, storytelling and 3D environments.

Create a vibrant space for cultural exchange and intergenerational interaction.

Promote Fundão as a rural reference for digital culture and gamification-based learning.

Dedicated space at CAET equipped with gaming stations, consoles, VR headsets.

Game development tools (Unity, Unreal Engine, etc.).

Local digital education expertise and youth facilitators.

Existing school partnerships and youth clubs.

Municipality of Fundão

Partners:

Fundão Schools Group and Gardunha e Xisto Schools Group

CAET – hosting and coordination

National gaming and e-sports associations

University of Beira Interior (digital storytelling and media studies)

Digital inclusion NGOs



**GENDER EQUALITY AND EQUAL OPPORTUNITIES** – By engaging diverse groups (e.g. girls, migrants, rural youth), this action fosters cultural participation and skills development in a sector often dominated by urban and male users.

### 10. DEV ROOM – A COMMUNITY-BASED DIGITAL STUDIO FOR CREATIVE AND TECH TALENT DEVELOPMENT

Dev Room will be a collaborative, project-based space equipped for game prototyping, software development, animation and digital storytelling. It will be open to young creatives, independent developers and students from Fundão and the region.

The room will host mentoring programmes, technical workshops, and hackathons in partnership with national and international networks. The focus is on hands-on skill development in fields like Unity, Unreal Engine, Blender, web3 and AI-assisted design tools, helping bridge the gap between education and employment in digital sectors.

This space will be embedded in Fundão's broader innovation ecosystem, encouraging links with start-ups, local companies, universities and external talent, contributing to talent retention and digital entrepreneurship in low-density areas.

Enable young creatives and digital professionals to prototype games and software locally.

Bridge the gap between education and employment in digital sectors.

Attract external collaborations and foster tech entrepreneurship in a rural context.

Build a talent pipeline in immersive technologies and digital storytelling.

Co-working and development space at CAET.

Workstations with advanced software (Blender, Unity, Web3 tools).

Mentoring networks, workshops and hackathons.

Linkages with startups and digital clusters.

Municipality of Fundão,

Partners:

UBI – support in digital and creative technologies

Local startups and independent developers

The DanyalGil Company / Cyango (technical mentoring)

CAET – space and community facilitation

National innovation networks and tech communities



**DIGITALISATION** – The action equips local talent with advanced digital tools and methodologies, enhancing employability and innovation capacity in the digital creative economy..

ACTION TITLE & SHORT DESCRIPTION	INTEND RESULT	RESOURCES & ASSETS	RESPONSIBLE ORGANISATION / KEY PARTNERS
<p><b>11. HIGH-PERFORMANCE AR/VR TRAINING CENTRE – ADVANCED LEARNING AND SPORT ENHANCEMENT THROUGH IMMERSIVE TECHNOLOGIES</b></p> <p>This action will create a cutting-edge training facility for immersive learning and physical training using Augmented Reality (AR) and Virtual Reality (VR). Targeted at students, athletes and professionals, the Centre will offer simulated environments for sports performance analysis, injury prevention, cognitive stimulation and interactive education.</p> <p>By combining health, sport, and digital education, this initiative will explore how immersive tech can enhance well-being and learning outcomes. It will also serve as a research and demonstration centre, attracting universities and tech developers.</p> <p>The centre will leverage Fundão's existing educational partnerships and be integrated with national sport innovation programmes, with potential application in fields like rehabilitation, motor coordination and active ageing.</p>	<p>Improve athletic performance and injury prevention through immersive simulations.</p> <p>Enhance learning experiences using AR/VR for education, rehabilitation and well-being.</p> <p>Support research and innovation in sports-tech and immersive pedagogy.</p> <p>Position Fundão as a rural testbed for health, sport and technology convergence.</p>	<p>AR/VR equipment (headsets, motion capture, simulation software).</p> <p>Space adapted for physical training and interactive sessions.</p> <p>Partnerships with schools, sports clubs and universities.</p> <p>Integration with the Digital Twin and Control Centre for feedback loops.</p>	<p>Municipality of Fundão</p> <p>Partners:</p> <p>Fundão School Sports Clubs</p> <p>UBI and Polytechnic of Castelo Branco (sports science and immersive tech)</p> <p>CAET and local health centres</p> <p>National sports federations</p> <p>VR development partners</p>



**ENVIRONMENTAL SUSTAINABILITY** – By using immersive simulations instead of resource-intensive facilities or travel, the action promotes low-impact, high-efficiency training and education models—while also integrating digital and health innovation.

ACTION TITLE	TIMESCALE					BUDGET	MAIN FUNDING SOURCES	TYPE OF INVESTMENT
	2026	2027	2028	2029	2030			
<b>9. GAME ZONE</b>						35.000,00€	FSE+ / PT2030 / Horizon Europe / Creative Europe	Youth Culture / Digital Literacy
<b>10. DEV ROOM</b>						45.000,00€	ERDF / PT2030 Innovation / Horizon Europe / Local Funds	Digital Economy / Talent Development
<b>11. HIGH-PERFORMANCE AR/VR TRAINING CENTRE</b>						80.000,00€	ERDF / Health & Education Funds / Sports Tech Grants / Local	Immersive Technology / Health & Education Innovation

## 5.3 RISK ANALYSIS | PESTLE

The implementation of Fundão's Integrated Action Plan (IAP) under the METACITY project introduces a wide range of innovations across digital governance, urban infrastructure, citizen participation, and cultural activation. While these actions present significant opportunities for rural resilience and smart transformation, they also carry potential risks that may affect feasibility, timing, impact, and long-term sustainability.

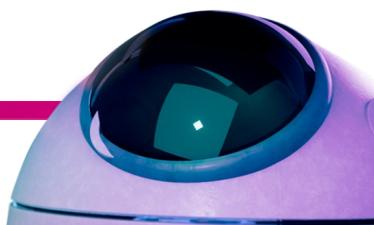
To anticipate and manage these challenges, the municipality adopted the **PESTLE risk** analysis framework, which considers Political, Economic, Social, Technological, Legal, and Environmental dimensions. This structured approach enables the local partnership to understand systemic vulnerabilities, external dependencies, and internal capacity gaps, and to prepare mitigation strategies tailored to the realities of a small city operating in a low-density context.

The table below summarises the most relevant risks identified, their potential impacts, and how they will be addressed through adaptive planning, partnerships, and capacity-building throughout the 2026–2030 implementation phase.



CATEGORY	RISK DESCRIPTION	POTENTIAL IMPACT	MITIGATION STRATEGY
P olitical	Change in local or national political leadership may deprioritise digital transformation and immersive technology initiatives.	Delays in implementation, reduced funding, loss of strategic alignment.	Ensure cross-party alignment through strategic documents and participatory processes. Anchor actions in PT2030 and Smart Cities Portugal frameworks.
E conomic	Inflation, budget restrictions, and limited public co-financing capacity may impact large-scale infrastructure or tech investments.	Downsizing or postponement of key investments (e.g. Control Centre, Digital Twin).	Diversify funding (ERDF, Horizon Europe, PRR, PT2030), phase implementation, leverage local in-kind resources (CAET, municipal facilities).
S ocial	Low digital literacy (especially among seniors or rural communities), digital fatigue, or resistance to emerging technologies.	Uneven adoption of platforms, exclusion from participation, limited impact of e-inclusion actions.	Pair all digital actions with inclusion strategies (training, outreach, co-design), adapt tools to local contexts, and promote intergenerational support models.
T echnological	Dependence on external IT providers, lack of internal capacity for managing advanced platforms (e.g. Digital Twin, VR, AI), or cybersecurity vulnerabilities.	Service instability, cost overruns, lack of autonomy, data breaches.	Invest in municipal capacity (Digital Skills Academy), promote open standards and modular solutions, ensure cybersecurity protocols are in place.
L egal	Complexity of GDPR compliance and data sovereignty, especially in participatory platforms, digital twins or health-related	Legal barriers, citizen mistrust, limited use of data.	Implement privacy-by-design, conduct Data Protection Impact Assessments (DPIAs), provide training and transparent communication to staff
E nvironmental	Exposure of infrastructure to extreme weather (heat, storms), energy disruption, or lack of sustainable technology lifecycle planning.	Damage to equipment, service interruptions, carbon footprint increase.	Prioritise resilient and energy-efficient technologies, monitor environmental indicators via the Digital Twin, implement sustainable procurement criteria.

This risk matrix will be monitored and updated regularly by the URBACT Local Group, ensuring early detection of vulnerabilities and the continuous adaptation of the IAP to emerging challenges and changing local, national and European contexts.



## 5.4 IMPACT ASSESSMENT AND EVALUATION

This section outlines a structured and participatory framework to evaluate the progress and impact of each action within the Metacity Integrated Action Plan for Fundão. The approach ensures that investments in digital innovation deliver measurable, inclusive, and lasting results aligned with local strategic goals.

The evaluation strategy is based on four core principles:

**Outcome Orientation:** Measuring change and impact rather than just implementation.

**Stakeholder Participation:** Engaging citizens, institutions, and users in defining and assessing progress.

**Quantitative and Qualitative Insights:** Combining measurable indicators with experiential evidence.

**Continuous Learning:** Using evaluation to adjust and improve actions during the implementation period.

Each action is evaluated using a consistent framework that links:

**Key Indicators:** These may reflect outputs (e.g. number of users or events), results (e.g. behavioural change or service uptake), or longer-term impacts (e.g. improved sustainability, inclusion, or digital capacity).

**Sources of Verification:** Data sources such as app analytics, training attendance logs, citizen surveys, user testimonials, service records, and project outputs.

**Frequency of Evaluation:** Depending on the action's nature and intensity, indicators may be tracked monthly, quarterly, annually, or through mid-term and final reviews.

**Responsible Entity:** Each action identifies a lead actor—usually a municipal division or delivery partner—responsible for coordinating data collection and reporting, often in collaboration with schools, universities, NGOs, or technical providers.

**Community Involvement Strategy:** Evaluation is co-produced with stakeholders through tools such as public dashboards, participatory testing, storytelling, peer reviews, and ULG workshops to ensure ownership and contextual feedback.



ACTION TITLE	KEY INDICATORS	SOURCES OF VERIFICATION	EVALUATION FREQUENCY	RESPONSIBLE ENTITY	COMMUNITY INVOLVEMENT
<b>1. DIGITAL SKILLS ACADEMY FOR SMART PUBLIC SERVICES</b>	Staff trained; quality improvement in service delivery; use of digital tools in administrative processes	Training attendance logs, service digitalisation reports, HR skill assessments	Annual internal audit and external peer review (2028)	Municipality of Fundão (Administrative Modernisation Services), University of Beira Interior	Training co-designed with staff; feedback loops via digital governance teams
<b>2. DIGITAL TRAINING FOR SENIORS</b>	Number of seniors completing training; usage of digital public services; self-reported confidence in digital tasks.	E-service logins, user feedback forms, trainer assessments	Annual; special focus study in 2028	Municipality of Fundão, Senior Associations, Local Schools	Youth-led training support; storytelling campaigns to capture digital journeys
<b>3. DIGITAL PARTICIPATION PLATFORM</b>	Platform registration; submitted proposals; demographics of participants; municipal actions influenced	Digital analytics, participatory budgeting records, policy adoption registers	Real-time tracking; comprehensive reviews every December	Fundão Innovation Services, Cyango, Youth Council	Platform ambassadors; school partnerships; testing by ULG

Action Title	Key Indicators	Sources of Verification	Evaluation Frequency	Responsible Entity	Community Involvement
<b>4. FUNDÃO DIGITAL TWIN</b>	Simulation scenarios developed; departments using predictive modelling; environmental or spatial decisions based on twin	Urban planning documentation; user logs; case studies of applied models	Biannual and endline (2030)	Urban Planning Unit, UBI, CAET	Open data visualisations and scenario co-design workshops
<b>5. VR-GR REALITY ROOM</b>	Design sprints hosted; tools used in participatory planning; inclusion of vulnerable groups	Room use statistics; project design archives; citizen feedback	Quarterly reporting; qualitative review in 2028	CAET, Municipal Planners, Local Schools	Gamified workshops; public exhibitions of design iterations
<b>6. INTELLIGENCE CONTROL CENTRE OF FUNDÃO</b>	Data streams connected; incidents resolved in real-time; emissions data tracked and acted upon	Dashboard logs; incident management records; operational KPIs	Monthly technical reviews; policy-level review in 2028	Smart City Division, Infrastructure Providers, CAET	Open dashboards; feedback loops for performance alerts
<b>7. SMART MOBILITY PLATFORM</b>	Monthly active users; frequency of trip planning; modal shift from private vehicles	App analytics, mobility survey data, school transport records	Annual; mid-term mobility audit in 2028	Municipality of Fundão (Mobility), ATF, ULG Mobility Group	School projects; rural focus groups; pilot user clubs
<b>8. SMART ZONES EXPANSION</b>	Smart zones activated; reduction in emissions and noise; number of users engaging with systems (e.g. smart parking)	Sensor dashboards; user feedback apps; environmental reporting	Annual, with zone-specific pilot reviews	Fundão Urban Planning Division, CAET, Route 25 Consortium	Citizen assemblies for area selection and design
<b>9. GAME ZONE</b>	Youth attendance; gender participation; outputs (games developed, events held)	Usage logs, content portfolios, outreach records	Biannual	CAET, Schools, National Gaming Network	Peer mentorship and open game labs
<b>10. DEV ROOM</b>	Digital products developed; mentoring hours delivered; employment or business launches	Development logs, feedback from mentors, CVs and employment outcomes	Annual evaluation and innovation cluster reports	CAET, UBI, Local Tech Mentors	Talent incubator cycles co-managed by stakeholders
<b>11. HIGH-PERFORMANCE AR/VR TRAINING CENTRE</b>	Learning hours completed; athlete/student progress; immersive content produced	Attendance and progress logs; trainer evaluations; user testimonies	Annual + qualitative case studies in 2028 and 2030	CAET, UBI, Local Health & Sports Clubs	Citizen testers and athlete co-design for tools

**Unified Monitoring System:** All indicators will be incorporated into a shared digital dashboard monitored by the ULG and updated quarterly. A mid-term evaluation (2028) and final impact assessment (2030) will synthesise findings to guide long-term digital strategy planning in Fundão.





06

# FINANCIAL RESOURCES

metacity fundão action plan



## 6. FINANCIAL RESOURCES

The implementation of the Metacity Integrated Action Plan in Fundão will rely on a **diversified mix of financial resources**. A combination of local **funds**, **national programmes**, and **EU funding instruments** will be mobilised, alongside potential private partnerships and innovation grants. This financial architecture is carefully aligned with the IAP's priorities and the broader strategic frameworks of **Portugal 2030 (PT2030)**, the national **Recovery and Resilience Plan (PRR)**, and the **EU's Cohesion Policy 2021–2027**. In practice, this means each action is matched to appropriate funding sources and calls, ensuring coherence with **PT2030 regional and thematic programmes**, **Horizon Europe** research and innovation opportunities, and **PRR investments** in digital transition.

**Strategic alignment with EU and national funding:** Every action in the Metacity plan is linked to one or more major funding frameworks. Notably, Fundão will tap **ERDF** (European Regional Development Fund) and **ESF+** (European Social Fund Plus) resources via the Centro 2030 Regional Programme and national thematic programmes under PT2030. For digital infrastructure and innovation pilots, the city will pursue **Connecting Europe Facility – Digital (CEF Digital)** and **Horizon Europe** calls. Actions focused on digital inclusion (e.g. senior training) align with **ESF+ inclusion priorities**, while those targeting public sector innovation may leverage **national digital transition funds** (including PRR-funded initiatives). The URBACT programme has already supported the planning phase, and where relevant the city will also explore Interreg (e.g. POCTEP cross-border) and **Digital Europe Programme** calls, as well as opportunities under the EU **Smart Cities Mission** for climate-neutral and smart cities. Wherever possible, Fundão will target **confirmed or anticipated calls between 2025 and 2030** in these programmes, ensuring timely financing for each action. Local co-funding from the municipal budget is included for sustainability and to meet match-funding requirements, demonstrating the city's commitment.

**Overview of funding per action:** Table 1 below details the financial plan for each of the **11 actions**, including the estimated budget, key expense categories, and the main funding sources with the corresponding programme (axis/priorities and expected call year). This structured approach ensures each action has a realistic budget grounded in its resource needs and is aligned with funding streams that match the action's objectives – from PT2030 regional funds to relevant EU programmes (Horizon Europe, CEF Digital, Erasmus+, etc.) and national/PRR funding lines. The funding mix for each action reflects both the thematic focus of the action and the available financing instruments geared towards that focus, in line with PT2030, Horizon Europe and PRR investment frameworks. Local funds are included where relevant to cover gaps and support ongoing costs.



ACTION TITLE	ESTIMATED TOTAL BUDGET	KEY EXPENSE CATEGORIES	FUNDING SOURCES PROGRAMME / AXIS (CALL YEAR)
<b>1. DIGITAL SKILLS ACADEMY FOR SMART PUBLIC SERVICES</b>  <i>Permanent training programme for municipal staff</i>	60.000,00€	Training modules & materials; ICT equipment upgrades; digital learning platform; staff coaching sessions	<b>ERDF – Centro 2030</b> (Regional OP, institutional innovation axis, call ~2025); <b>ESF+ – Public Administration Training</b> (PT2030 capacity-building programme, call ~2025); <b>Local</b> – Municipal budget (co-funding annual training initiatives).



ACTION TITLE	ESTIMATED TOTAL BUDGET	KEY EXPENSE CATEGORIES	FUNDING SOURCES PROGRAMME / AXIS (CALL YEAR)
<b>2. DIGITAL TRAINING FOR SENIORS</b> <i>Digital literacy programme for the elderly</i>	50.000,00€	Tablets & user-friendly devices; printed guides and materials; community training workshops; support volunteers	<b>ESF+ – Social Inclusion (Centro 2030)</b> (Digital literacy for vulnerable groups axis, call ~2025); <b>PRR – Digital Inclusion Initiative</b> (national recovery plan funding for adult digital skills, ~2025); <b>Local</b> – Municipal funds and in-kind support (venues, volunteer coordination).
<b>3. DIGITAL PARTICIPATION PLATFORM</b> <i>Interactive platform for e-democracy and civic engagement</i>	90.000,00€	Software development & licensing; user interface and app design; data integration with city systems; citizen outreach & training	<b>ERDF – Centro 2030</b> (Digital governance and smart cities axis, call ~2026); <b>CEF Digital</b> (EU Connecting Europe Facility – digital service infrastructure call, ~2025); <b>National Smart Cities Program</b> (e.g. "Cidade Inteligente" initiative, call ~2026); <b>Local</b> – Municipal budget (platform maintenance and support).
<b>4. FUNDÃO DIGITAL TWIN</b> <i>Real-time 3D model for predictive urban planning</i>	120.000,00€	IoT sensors and data feeds; 3D modelling & simulation software; cloud data infrastructure; expert consultancy for AI analyses	<b>ERDF – Centro 2030</b> (Smart city infrastructure and spatial planning axis, call ~2025); <b>Horizon Europe</b> (R&I project on urban digital twins – e.g. Cluster 5 "Climate-Neutral and Smart Cities" call, ~2025); <b>Local</b> – Municipal budget (co-finance for hardware and maintenance).
<b>5. VR-GR REALITY ROOM</b> <i>Immersive urban design and co-creation lab at CAET</i>	70.000,00€	VR equipment (headsets, etc.); immersive design software licenses; lab space setup and furnishings; co-creation workshops and trainings	<b>ESF+ – Innovation &amp; Skills (PT2030)</b> (supports training in digital tools for urban planning, call ~2025); <b>National Digital Transition Fund</b> (PT national funding for public sector digitalisation, potentially via PRR, call ~2025); <b>Local</b> – Municipality (providing space and basic infrastructure at CAET).
<b>6. INTELLIGENCE CONTROL CENTRE</b> <i>Smart City control room for urban monitoring</i>	150.000,00€	Central control room equipment (video wall, servers); integrated data monitoring software; sensor network integration (traffic, environment); staff training for 24/7 operations	<b>ERDF – Centro 2030</b> (Urban intelligence and resilience axis, call ~2025); <b>CEF Digital</b> (EU 5G for Smart Communities call, to support connectivity for sensors, ~2025); <b>Horizon Europe – Smart Cities Mission</b> (EU Mission funding for climate-neutral & smart cities pilots, ~2025); <b>Local</b> – Municipal co-funding (operational costs and staffing).



ACTION TITLE	ESTIMATED TOTAL BUDGET	KEY EXPENSE CATEGORIES	FUNDING SOURCES PROGRAMME / AXIS (CALL YEAR)
<b>7. SMART MOBILITY PLATFORM</b> <i>Integrated MaaS platform connecting urban &amp; rural transport</i>	180.000,00€	Mobility app and platform development; real-time data systems and APIs; e-ticketing integration; user outreach & training materials	<b>ERDF – Centro 2030</b> (Sustainable mobility and transport innovation axis, call ~2025); <b>Local</b> – Municipal budget (support for platform operation and integration with existing services, 2026–2030).
<b>8. SMART ZONES EXPANSION</b> <i>Scaling of smart mobility and public space hubs</i>	300.000,00€	Smart infrastructure hardware (parking sensors, smart lighting, EV charging stations); installation and construction works; environmental sensors; citizen co-design workshops; monitoring dashboard linked to Control Centre	<b>PRR – Recovery Plan</b> (Green and digital city initiatives, call ~2025 for sustainable urban mobility); <b>“Route 25” Pilot</b> Funding (existing national innovation project funds leveraged from 2023–25); <b>ERDF – Centro 2030</b> (Urban mobility and public space renewal axis, call ~2026); <b>Smart Cities Portugal</b> (national smart cities network funding, ~2026); <b>Local</b> – Municipal budget (co-funding and maintenance of new infrastructure).
<b>9. GAME ZONE</b> <i>Youth digital creativity and gaming hub</i>	35.000,00€	Gaming hardware (PCs, consoles, VR kits); creative software tools (game engines, design suites); space refurbishment and utilities; workshops, e-sports events and mentorship programs	<b>ESF+ – People 2030</b> (Digital skills and youth education axis, call ~2025); <b>ERDF – Centro 2030</b> (Cultural and educational infrastructure enhancement, call ~2025); <b>Horizon Europe:</b> (Cluster 2 – Culture, Creativity and Inclusive Society: support for digital innovation in the creative industries (anticipated call ~2026). <b>Creative Europe:</b> Support for video game and interactive media projects within the EU cultural and creative sectors (anticipated call ~2025).
<b>10. DEV ROOM</b> <i>Community digital studio for tech talent development</i>	45.000,00€	High-end workstations and prototyping equipment; software licenses (game engines, animation, AI tools); mentorship and training programs; hackathons and innovation events; networking and outreach	<b>ERDF – “Innovation &amp; Digital Transition” (Compete 2030)</b> (support for regional innovation hubs and start-up incubators, call ~2025); <b>Horizon Europe</b> (Collaboration in creative industries R&D, e.g. Cluster 2 Culture/Creative calls, ~2026); <b>Local</b> – Municipal budget (facility provision and coordination).



ACTION TITLE	ESTIMATED TOTAL BUDGET	KEY EXPENSE CATEGORIES	FUNDING SOURCES PROGRAMME / AXIS (CALL YEAR)
<b>11. HIGH-PERFORMANCE AR/VR TRAINING CENTRE</b> <i>Immersive learning and sports technology centre</i>	90.000,00€	Advanced AR/VR equipment (motion capture systems, simulators); facility adaptation for training and rehab use; specialised software (sports analytics, interactive education); partnership programs with universities and sports institutes; pilot training sessions	<b>ERDF – Centro 2030</b> (Education and innovation infrastructure axis, call ~2026); <b>ESF+ / National Education Programme</b> (training educators and professionals in digital tools, call ~2026); <b>Erasmus+ Sport</b> (EU programme for innovation in sport and physical activity, cooperation partnership call 2025); <b>National Sports Tech Grants</b> (e.g. via sports federations or innovation agencies, 2025–27); <b>Local</b> – Municipal budget (co-funding operation and staffing).

**Table 1: Estimated budget and funding plan for each action of the Metacity IAP (Fundão).**

All amounts are indicative. Programmes and calls are based on the best available information and aligned with PT2030 and EU funding timelines. By leveraging a blend of EU funds (ERDF, ESF+, CEF Digital, Horizon Europe, etc.), national programmes (including PRR-funded initiatives) and local contributions, Fundão can maximize financial input for its digital transformation goals. This multi-source financing approach not only ensures the viability of each action but also reinforces their alignment with regional, national, and European investment priorities through 2030.

Each call will be monitored by the Innovation and Investment Division of the Municipality, with regular alignment to the **Monitoring Committee** and the **ULG**, ensuring financial responsibility, transparency and flexibility to seize funding opportunities.

The municipality is committed to developing a funding calendar and application taskforce from 2026 onward to match each action to concrete open calls and EU opportunities.





07

## COMMUNICATION STRATEGY AND PUBLIC CONSULTATION

metacity fundão action plan



## 7. COMMUNICATION STRATEGY AND PUBLIC CONSULTATION

### Keeping the IAP visible, collaborative and innovation-driven

In METACITY, communication is not merely about informing the public – it is a strategic tool to build collective understanding, activate engagement, and support a human-centred digital transition. Fundão's approach will ensure that the Integrated Action Plan remains visible, dynamic and community-driven throughout its implementation phase.

The communication and engagement strategy will follow three core principles:

#### VISIBILITY

IAP actions, milestones and outcomes will be communicated clearly and regularly through digital and physical channels. The **Move to Fundão** portal will serve as the central platform for news, updates and interactive dashboards. Communication will also rely on **local media**, public spaces (schools, libraries, parish centres), and **social networks** to reach a wide and diverse audience.

#### PARTICIPATION

Citizens, students, professionals and local institutions will be invited to experience, test and co-develop solutions. Prototypes and immersive tools will be showcased during events such as Digital Open Days, workshops and Smart Zone demonstrations. Feedback loops – including quick polls, idea stations and informal discussions – will ensure that communication remains two-way and responsive.

#### LEARNING AND REPLICATION

The communication strategy will highlight success stories and local innovations. Co-created tools (e.g. VR kits, visual guides, co-design methods) will be shared via networks such as **URBACT**, **SmartRural21** and national platforms. The **Move to Fundão** portal will act not only as an information hub, but as a “living lab window” where others can follow Fundão’s transition journey.

In METACITY, communication is not about visibility alone – it is about inviting people to shape digital transformation through dialogue, experimentation and learning.

### Communication & engagement action plan (2026–2028)

OBJECTIVE	KEY ACTIVITIES	TARGET GROUPS	CHANNELS & FORMATS	TIMING
<b>Official launch of the IAP</b>	Press release, launch event, publication of the IAP online	General public, media, institutional actors	Move to Fundão portal, municipal website, Rádio Cova da Beira	Q1 2026
<b>Progress communication</b>	Regular updates, visual dashboards, summary articles	Citizens, ULG members, funders	Portal, social media, public displays in libraries and schools	Biannually
<b>Prototyping and demonstration</b>	Immersive demos, Smart Zone testing, VR exhibitions, Digital Open Days	Residents, students, entrepreneurs	Events, digital room, exhibitions, Move to Fundão	Rolling (from Q2 2026)
<b>Institutional briefings and updates</b>	Practical guides, workshops, briefings for staff and stakeholders	Municipal departments, schools, public staff	Internal newsletters, intranet, briefings	Twice a year
<b>Celebrating innovation &amp; contributions</b>	Stories of successful pilots, recognition of key contributors and youth innovators	Citizens, schools, European partners	Move to Fundão, social media series, podcasts, design showcases	Biannual
<b>Sharing methods and tools externally</b>	Documentation of tools (e.g. VR kits, co-design guides), presentation at events	Other cities, networks, regional platforms	URBACT, SmartRural21, online publications, peer exchanges	From Q4 2026



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## BIBLIOGRAPHY AND WEB REFERENCES

metacity fundão action plan



## 8. BIBLIOGRAPHY AND WEB REFERENCES

This Integrated Action Plan has been informed by a combination of local knowledge, national and European policy frameworks, URBACT tools and project documentation, as well as good practices from other cities leading on digital innovation. The references below illustrate the knowledge base and collaborative resources that supported Fundão's work in the METACITY network.

### LOCAL AND NATIONAL SOURCES

- Municipality of Fundão (2023–2025). Internal working documents, SSA technical notes, and ULG meeting summaries.
- Move to Fundão – municipal innovation and digital transition portal: <https://www.movetofundao.pt>
- Portugal 2030 – Thematic and Regional Operational Programmes.
- PRR – Plano de Recuperação e Resiliência (Portugal). Components on digital public services and skills.

### EUROPEAN POLICY AND STRATEGIC FRAMEWORKS

- European Commission (2023). Europe's Digital Decade: Policy Programme 2030.
- European Commission (2022). Virtual Worlds Initiative – Towards the Next Technological Transition.
- European Commission (2020). Shaping Europe's Digital Future.
- Horizon Europe – Clusters 2 and 5 (Digital, Creative and Urban Innovation): <https://research-and-innovation.ec.europa.eu>
- Digital Europe Programme: <https://digital-strategy.ec.europa.eu>

### URBACT AND METACITY RESOURCES

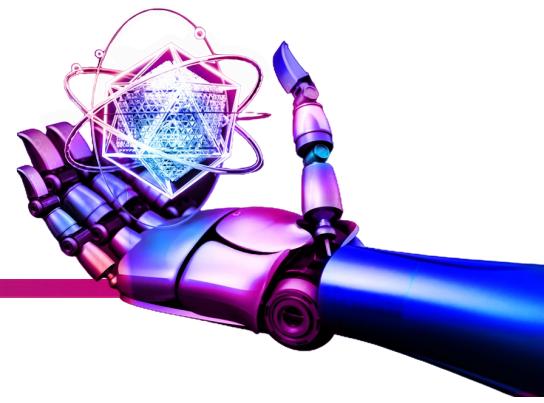
- URBACT Secretariat (2023). Guide for Integrated Action Plans (UIV APN).
- URBACT (2024). IAP Study 2 – Final Report. URBACT Knowledge Hub.
- METACITY APN (2023–2025). Templates, Transfer Roadmap, Testing Action methodology, communication outputs, peer exchanges.
- URBACT IV Programme website: <https://urbact.eu>

### GOOD PRACTICES AND PROJECT INSPIRATIONS

- Tampere (Finland) – Digital twin strategy for urban planning and public involvement.
- Barcelona Digital City – Digital rights, open-source governance, and citizen data sovereignty.
- Oulu (Finland) – Extended reality tools in schools and municipal planning.
- SmartRural21 – Smart strategies for rural and small municipalities: <https://www.smartrural21.eu>
- Living Labs Europe – Co-design frameworks and testbed models for digital transition.

### VISUAL AND COMMUNICATION TOOLS

- METACITY Fundão – Testing Action on digital twin and VR room (2024–2025).
- Visual summaries of ULG meetings and Transnational meetings (2023–2025).
- Communication templates produced within the METACITY network.
- DALL-E, Slidesgo and Flaticon Icons and infographics





09



## FINAL NOTES

metacity fundão action plan

## 9. FINAL NOTES

This Integrated Action Plan represents a significant step in Fundão's ongoing strategy to shape a smarter, more connected and human-centred city. Through the METACITY network, the municipality had the opportunity to explore new digital approaches, experiment with immersive tools, and co-develop solutions with local actors.

The Municipality of Fundão extends its sincere appreciation to all members of the **URBACT Local Group**, municipal departments, technical staff and institutional partners who contributed to the design and testing phases of the plan. Their commitment, feedback and collaboration made it possible to align ambitions with real capacities.

We also wish to acknowledge the support of the **URBACT Secretariat**, the **Lead Expert**, and all **METACITY partner cities**, whose contributions, exchanges and good practices enriched the Fundão process.

The IAP is not a static document, but a dynamic starting point. Its success will depend on how it is implemented, adapted and shared – with transparency, openness and accountability. The municipality is committed to carrying forward the core values of this process: **digital innovation with purpose, collaborative governance, and inclusive access to public data and services**.

This plan lays the groundwork for a future where technology enhances, rather than replaces, the human connection – and where every citizen can see and shape the digital city they live in.

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Obrigado  
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