INTEGRATED ACTION PLAN

METACITY

NEVERS AGGLOMERATION

URBACT

Co-funded by
the European Union
Interreg

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AGGLOMÉRATION

NEVERS

A word from our elected representative

Since 2019, Nevers and its urban area have been partners in the IoTxChange network, part of the European territorial cooperation programme URBACT. This initiative echoes our commitment to co-development through innovation and digital technology, as promoted by the International Summit on Innovation in Medium-Sized Cities (SIIViM) and the SIIViM Network - Ecoter Mission. These are also the reasons why we are involved in the Metacity programme, which aims to enhance the competitiveness of our cities by leveraging the countless possibilities offered by virtual worlds. Their immersive digital environments promise to revolutionize sectors such as Health, Tourism, Education, and Higher Education. The metaverse, empowered by Artificial Intelligence, should enable public decision-makers to improve services for citizens, foster innovation for businesses, and provide a trustworthy, fair, and inclusive environment. This is exactly what the Metacity programme stands for—values we fully support.

DENIS THURIOT
PRESIDENT OF NEVERS AGGLOMERATION,
MAYOR OF NEVERS,
BOURGOGNE-FRANCHE-COMTÉ REGION COUNCILLOR

ALAIN BOURCIER
VICE-PRESIDENT OF NEVERS AGGLOMERATION,
MAYOR OF GIMOUILLE,

SUMMARY

INTRODUCTION

La The digital transition is now a major challenge for cities of all sizes, particularly for mid-sized towns like Nevers. The rise of digital technologies is profoundly transforming the way local authorities manage their public services, design their mobility policies, stimulate the economy, and strengthen social inclusion. However, this transformation also raises challenges of governance, accessibility, environmental sustainability, and resilience in the face of the rapid changes of the contemporary world.
It is in this context that Nevers Agglomeration is part of the URBACT Metacity network, a European territorial cooperation program aimed at fostering the exchange of best practices, mutual learning, and the co-construction of innovative solutions between European cities. URBACT provides a unique framework for experimenting with, comparing, and enriching local approaches to the digital transition, while aligning them with the European Union's strategic objectives : territorial cohesion, sustainability, innovation, and inclusion.
Nevers and its metropolitan area have been partners of the Urbact network since 2019, implementing an initial IoTxChange program on digital transformation, which enabled the local stakeholders involved to reflect on innovative ways to build the city together.

In 2022, at the invitation of the city of Fundão, Nevers Agglomeration once again readily joined this cooperation project around the metaverse, which echoes the idea of co-development through innovation and digital technology that we promote through the International Summit on Innovation in Medium-Sized Cities and the SIIViM Network – Mission Ecoter, which is gradually being built, including at the European level. This network, of which we are the founders, aims to share solutions between cities and promote the replicability of the tools developed.

With this in mind, the Metacity project also paves the way for reflection on the emerging uses of the metaverse and immersive environments. These new digital spaces offer unprecedented opportunities to rethink citizen participation, education, culture, and economic attractiveness, but they also challenge local authorities on issues of ethics, accessibility, and sustainability.

Nevers Agglomeration's integrated action plan thus aims to explore how these technologies can become a lever for innovation serving the region, in line with European ambitions and residents' expectations.ces technologies,

The metaverse represents an opportunity for Nevers to strengthen its attractiveness, boost its economy, modernize its services, and encourage greater citizen participation. This could transform the city into a model of modernity and innovation, benefiting its residents and its future development. Various development areas, such as tourism and cultural promotion, education and training, and attracting technology companies, can be explored. By positioning itself as a pioneer in the metaverse field, Nevers can attract startups and technology companies, thus creating new economic opportunities and local jobs, as well as advancing the uses of the metaverse in the community sector.

The Metacity network allows us to share experiences and insights to ensure the optimized deployment of metaverse solutions in our region, as well as the necessary security of these new "doors" opening up to us.

This Integrated Action Plan, which details the action proposals, the implementation framework and the analyses of needs and costs, is the result of discussions and reflections carried out since 2022. It also illustrates the undeniable added value of belonging to the Metacity network, which offers cities the opportunity to co-innovate together and, thus, to invest for the future.

TERRITORIAL DIAGNOSIS

CURRENT SITUATION

Located in the heart of the **Bourgogne-Franche-Comté region**, the Nevers urban area occupies a strategic position on the banks of the Loire. It lies at the crossroads of several major national routes, notably the A77 motorway linking Paris to central France, and benefits from a direct rail connection to the capital in under two hours. This location provides **good accessibility**, although the relative distance from major metropolitan centers (Dijon, Clermont-Ferrand, Orléans) can limit its outreach.

The Loire River, a major natural and landscape asset, represents both a source of **touristic attractiveness** and a challenge for **environmental management** (flood prevention, ecosystem preservation).

Nevers Agglomeration is a Public Inter-municipal Cooperation Establishment (EPCI) composed of 14 member municipalities.

Nevers plays the role of a **central city** for the Nièvre department, concentrating most administrative, service, and key infrastructure functions (healthcare, higher education, culture). It maintains links with neighboring areas such as the Berry, Bourbonnais, and Burgundy wine regions, making it a point of balance between several regional spheres.

However, its geopolitical positioning is marked by a degree of **peripherality**: the urban area lies on the margins of major European corridors (Rhine-Rhône axis, Rhône Valley, and the denser Loire corridor), limiting its integration into broader economic and logistical flows.

Cities of Nevers Agglomeration :

· Nevers

· Varennes-Vauzelles

· Fourchambault

· Garchizy

· Saint-Eloi

· Sermoise

· Challuy

· Coulanges les Nevers

· Pougues les Eaux

· Saincaize-Meauce

· Germigny s/ Loire

· Gimouille

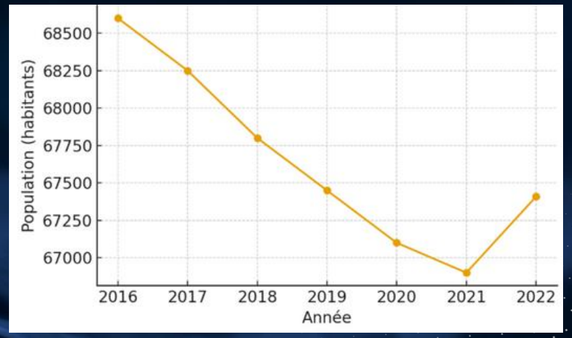
· Parigny les vaux

· Marzy

Nevers Agglomeration stands out for its quality of life, offering a pleasant living environment with numerous green spaces, a rich cultural life, and local services. The region also boasts a significant historical heritage, with the city of Nevers known for its cathedral and other historic monuments.

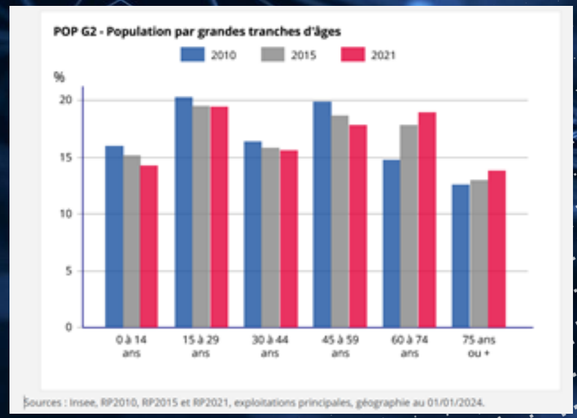
DEMOGRAPHICS

Population Trends and Dynamics
The Nevers urban area currently has around 65,000 inhabitants (INSEE figures to be specified), spread across its member municipalities. After a period of growth in the mid-20th century, demographic trends have reversed since the 1980s, with a gradual population decline. This decline is the result of a negative migratory balance, mainly due to the outflow of young adults to universities and regional metropolitan areas, combined with a negative natural balance (more deaths than births).
This demographic pattern highlights challenges in maintaining residential attractiveness and retaining young talent, although the decline remains less pronounced than in other rural areas of the Nièvre, confirming Nevers' role as the department's main urban center.



Age Structure and Population Ageing
The age pyramid reveals an ageing population. The share of residents aged 60 and over exceeds the national average, while the proportion of 20-40 year-olds is relatively low. This reflects both the out-migration of young workers and students, and a relatively low birth rate.
Population ageing generates several challenges:
Healthcare and social services (availability of medical care, elderly care facilities, long-term support),
Accessible mobility solutions and support for independent living,
Renewal of the workforce, essential for the area's economic vitality.
At the same time, this demographic profile also opens opportunities, particularly around the development of the silver economy and the adaptation of housing supply (age-friendly housing, intermediate housing, senior residences),

Residential Mobility and Attractiveness
The territory experiences a significant outflow of residents to Dijon, Clermont-Ferrand and Paris, both for study and employment. However, the agglomeration does attract a return or inflow of new residents, often consisting of:
households seeking a more affordable living environment,
retirees attracted by relatively low housing costs,
families looking for a balance between urban life and proximity to nature.
The presence of a transport network (SNCF train station with connections to Paris in about two hours), the central Loire location, and the cultural and heritage assets of Nevers are key factors for strengthening residential attractiveness, provided that a proactive strategy is developed (housing, digital infrastructure, local services),



Spatial Distribution and Internal Dynamics
The agglomeration is marked by a strong concentration around Nevers, the central city accounting for over one-third of the total population, while surrounding municipalities show more stable or even positive growth thanks to greater availability of land and attractive suburban housing for young households. This dynamic reflects a peri-urbanization process, which increases dependence on car-based mobility and raises the issue of coordinating land-use and transport policies at the inter-municipal scale.

Main Demographic Challenges for the Territory
Stabilizing the population by enhancing residential and economic attractiveness, particularly for young households and working-age residents.
Rebalancing the age structure by addressing ageing accelerated by youth out-migration.
Adapting public services (healthcare, mobility, housing) to the needs of an ageing population.
Managing peri-urbanization sustainably, preventing urban sprawl and promoting more compact, resilient urban forms.
In short, the demographic analysis highlights a territory facing structural challenges but also possessing levers for action to reverse current trends, through strategies focused on attractiveness, quality of life, and innovation in service provision.
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ECONOMY

Overall Economic Structure
The economy of the Nevers urban area is characterized by the predominance of small and medium-sized enterprises (SMEs and micro-businesses), mainly in retail, personal services, crafts, and public administration. The weight of the public and para-public sectors remains significant, providing relative stability in local employment, but also reflecting dependence on activities that generate limited market value-added.
The industrial fabric, once a cornerstone of the territory (metallurgy, mechanics, plastics), has undergone a marked decline since the 1980s, following the closure or restructuring of major sites. However, several companies specializing in niche sectors (aeronautics, electronics, agri-food) continue to anchor the industrial identity of the territory.

Employment and Unemployment
The local labor market is marked by an unemployment rate above the national average (to be specified according to the latest INSEE data), reflecting persistent difficulties in creating jobs that match the profiles of the local workforce. Youth and low-skilled workers are particularly affected, while certain industries face recruitment challenges in shortage occupations (nursing, construction, industrial maintenance).
Public sector employment remains an essential social stabilizer, with hospitals, administrations, education, and local authorities playing a major role. However, this structure limits economic diversification and resilience in the face of global transformations.

Growth Sectors and Emerging Dynamics
Despite these vulnerabilities, several positive dynamics are worth highlighting:
Health and social care: strong growth linked to population ageing and the presence of major hospital institutions.
Cultural and heritage tourism: promotion of Nevers as a “City of Art and History,” capital of faience, and a key stop on the Loire à Vélo cycling route. The potential is significant but still underexploited.
Innovation and digital economy: emergence of initiatives around the INSPÉ campus, the ISAT engineering school (Institut Supérieur de l’Automobile et des Transports), and local incubators, particularly in mobility, automotive, and digital fields.
Agriculture and short supply chains: a diversified agricultural fabric (viticulture, livestock, local production) supporting gastronomic and sustainable development initiatives,

Attractiveness and Investment
The Nevers urban area suffers from limited economic attractiveness compared to regional metropolitan centers such as Dijon, Clermont-Ferrand, or Orléans, which concentrate the majority of investment and qualified jobs. Nevertheless, its geographical position at the crossroads of major routes (Paris within two hours by train, proximity to the A77 motorway) constitutes a strategic lever to attract companies seeking lower real estate and land costs.
Available land, affordable property prices, and quality of life can be promoted as arguments to attract new activities, particularly in service industries, e-commerce, or companies seeking a more human-scale location.

Key Economic Challenges
Diversify the economic fabric to reduce dependence on the public sector and declining traditional industries.
Strengthen skilled employment and retain young graduates, particularly through partnerships with ISAT and higher education institutions.
Capitalize on local areas of excellence (mobility, digital economy, health, crafts, cultural and sustainable tourism).
Improve territorial attractiveness by increasing Nevers’ visibility among investors and leveraging its assets (location, land availability, quality of life).
Address labor market tensions by promoting upskilling and aligning training supply with business needs.

INNOVATION AND SMART TERRITORY

Nevers Agglomeration has increasingly prioritized digitalization as a development tool to improve residents' lives and enable better community management.

It also positions itself as a **medium-sized city** and a **leader in digital transformation** for this type of city—not only in Europe but also by leveraging ties with cities internationally.

Key achievements over the past five years include (among others) :
•First medium-sized city to earn the "Responsible Digital" label.
•Implementation of a digital inclusion program facilitating access to digital services for all.
•Hosting high-profile innovation events (the International Summit of Innovation in Medium-Sized Cities – SIIViM, Obsodays, the Digital Ethics Conferences, etc.).
•Implementation of various projects : smart urban furniture (eTree, a solar tree); the first autonomous shuttle used in public space during a two-month pilot.
•Robotics initiatives for students across Nevers Agglomeration.
•Deployment of the Internet of Things (IoT), enabling enhanced, preventive, and predictive data analysis.
•…
The territory benefits from the presence of several structuring actors:
ISAT (Institut Supérieur de l'Automobile et des Transports), the only French engineering school specialized in mobility and automotive industries, a driver of technological innovation and industrial partnerships.
Higher education and research institutions (university campus, INSPÉ), contributing to the training of young talent.
Incubators and support structures (e.g., digital hubs, fab labs, business incubators), fostering the emergence of local start-ups.

These initiatives form the foundation of an innovation ecosystem, even if it remains modest in size and sometimes lacks visibility at the national level.

POLICY AND EUROPEAN STRATEGIES

DIGITAL DEVELOPMENT : A STRATEGIC PRIORITY FOR NEVERS

Nevers has made digital development a priority to strengthen the territory's attractiveness and competitiveness. A digital roadmap was drafted in 2019 to plan territorial development and secure political buy-in across municipalities through concrete, operational achievements by 2026—positioning Nevers as a "lab city" powered by data.

Data-first strategy :

Urban sensors & a data hypervisor were the first workstream implemented :

- Deployment of sensors (parking, mobility, public spaces).
- Scaling up a data hypervisor to steer evidence-based public policy; cross-referencing territorial data to optimise public action (mobility, energy, public space).

Innovation ecosystem "from test to deployment"

- L'INKUB (incubator–accelerator–business hotel) : since 2016, a hub dedicated to innovative companies and higher education, offering a support continuum (ideation → proof of concept → acceleration) and hosting smart-city/digital-industry projects.
- French Tech & "Village by CA" connections : hackathons, programmes and network effects to source solutions and attract talent; these formats create bridges to other regions/countries and facilitate the exportability of local innovations.

International opening – SIIViM

- Creation of SIIViM, the "first marketplace for medium-sized cities" : welcoming startups from diverse horizons (Québec, Israel, etc.), with pitches, demos and B2B/B2G meetings; the event acts as both an adoption accelerator and a showcase of references.

Inclusion, skills & acceptability – ensuring benefits for all

- Digital inclusion : tackling digital inequalities by recruiting four digital inclusion officers to support residents in accessing e-services—key to social acceptability of the transition and to reducing the usage divide.
- AI acculturation & public debate : a clear local stance—"useful AI, but governed"—with mediation formats (conferences, forums, events) bringing together researchers, elected officials and international business leaders.

THE ROLE OF NEVERS AGGLOMERATION IN INNOVATION (LOCAL & INTERNATIONAL) — ECOSYSTEM ORCHESTRATOR

The Agglomeration acts as an integrator :
It defines use cases, opens up access to data, brings partners together (industry, academia, startups), secures testing spaces (city-lab / urban living lab), and facilitates scaling up (replication, innovative public procurement).

SIIViM provides international reach;

L'INKUB and the **French Tech** networks ensure cross-fertilization.

Innovative buyer and "reference client."
Through projects in smart mobility, parking, and hypervision (central monitoring/data hypervisor), Nevers creates exportable references for local startups and SMEs, helping them convince other local authorities in France and abroad.

Promoter of responsible digital.
By combining inclusion, equipment reuse, and digital sobriety, the Agglomeration makes responsibility a distinctive hallmark of its innovation offer — an asset for partners and funders who are increasingly attentive to ESG criteria.

IDENTIFICATION OF PROBLEMS BY LOCAL ACTORS

ULG PARTNERS LIST

Nevers Agglomeration leads the Integrated Action Plan within the METACITY network.
To do so, several local stakeholders have been involved to co-design what tomorrow’s metaverse city will look like.

Innovation Service – Nevers Agglomeration

This department sponsors the URBACT Metacity project and coordinates the Local Action Group. It oversees and steers all innovation projects within the authority and has in-depth knowledge of local issues, infrastructures and partner networks. In constant dialogue with elected officials, the service implements the agreed innovation policy.

Nevers Connected Campus

The higher-education department operates the Nevers Connected Campus—one of France’s leading connected campuses in terms of student numbers and available programmes. Students are key drivers in the deployment of new technologies, and the campus’s objectives align perfectly with the metaverse ambitions.

Dynaverse (startup)

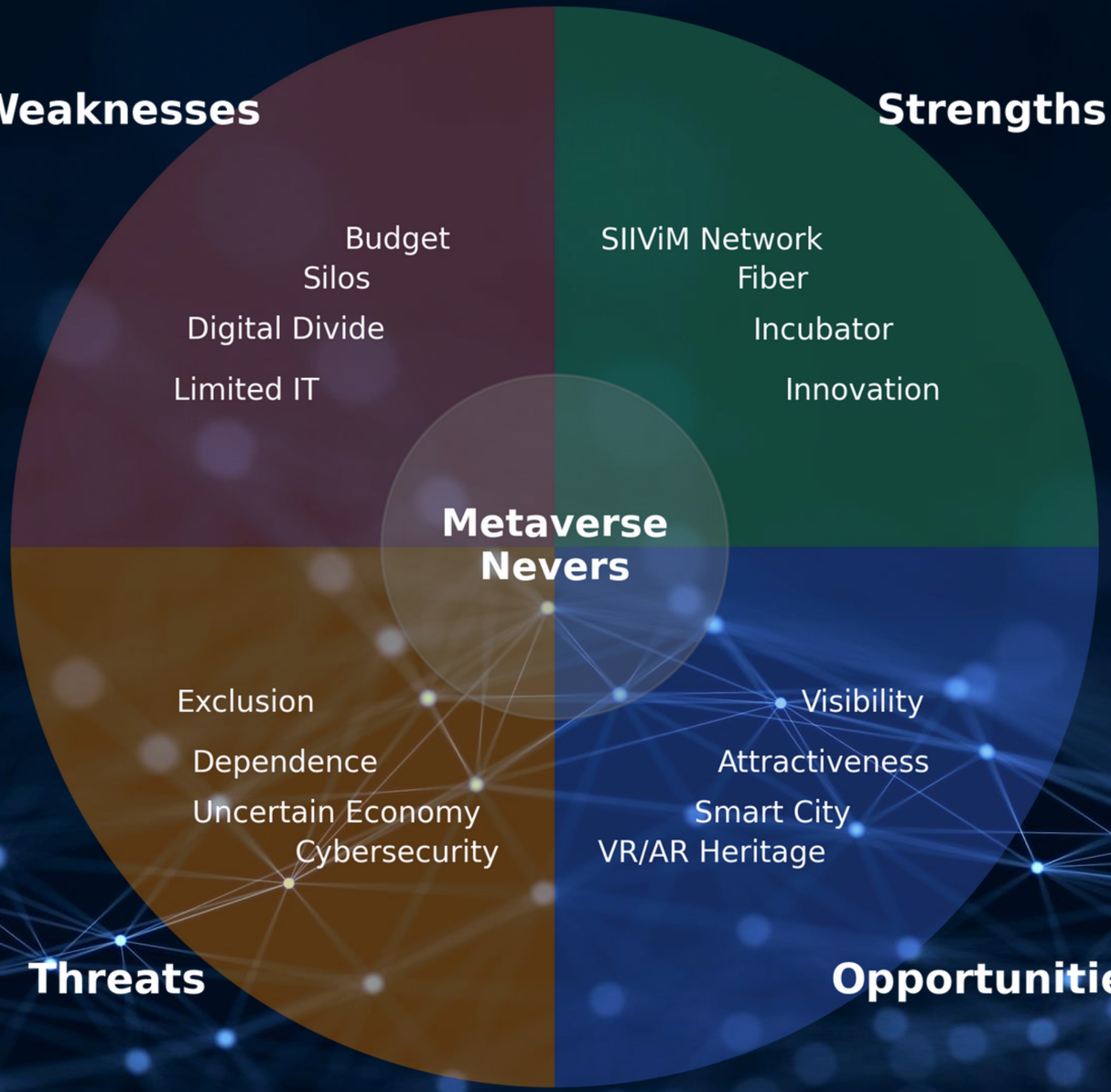
A local startup providing realistic 3D environments that are as light and accessible as a 2D web page. Imagine the future web : enabling any organisation to build its own 3D world—consumer-friendly, with no technical prerequisites, directly from a smartphone. As a 3D solutions provider and expert, Dynaverse brings essential technological expertise for the solutions to be implemented under the action plan.

5Discovery (startup)

A startup based at L’INKUB in Nevers. It supports private and public organisations and the education sector in engaging, effective and inclusive 3.0 training. It fosters employee engagement to create a more caring ecosystem through well-being with immersive technologies. Its goal : develop human skills and sustainability for a better quality of life. The team has strong skills in the metaverse domain.

Nièvre Numérique

Created in 2006, Nièvre Numérique is a public entity in charge of the department’s digital infrastructure, in particular the roll-out of fibre-optic networks. Today it is also steering the development of digital uses.


Weaknesses
Budget
Silos
Digital Divide
Limited IT
Strengths
SIIViM Network
Fiber
Incubator
Innovation
Metaverse
Nevers
Exclusion
Dependence
Uncertain Economy
Cybersecurity
Visibility
Attractiveness
Smart City
VR/AR Heritage
Threats
Opportunities

LOCAL STRENGTHS AND OPPORTUNITIES

STRENGTHS

- Strong momentum in recent years around innovation, digital and emerging technologies.
- A business incubator and the presence of companies specialized in the metaverse.
- Programs and competitions are organized to encourage innovation, especially in ICT.
- A fiber-optic network : fast, reliable Internet connectivity—essential for developing and using VR and AR technologies.
- Collaboration with higher-education institutions and research centers to foster technological innovation and develop metaverse-related skills.
- Regular events, hackathons and meetups to encourage idea sharing and collaboration.

OPPORTUNITIES

- Ongoing smart-city initiatives provide a favorable framework for integrating cutting-edge technologies, including those required for a metaverse.
- Use of VR and AR to promote Nevers' historical and cultural heritage, offering opportunities for innovative metaverse projects.
- The SIIViM – Mission Ecoter network connects Nevers with many other French and international cities.
- Collaboration with higher-education institutions and research centers to foster technological innovation and develop metaverse-related skills.
- Regular events, hackathons and meetups to foster idea exchange and collaboration.

WEAKNESSES AND THREATS

WEAKNESSES

- Limited human resources and budget.
- Siloed operations across departments and member municipalities.
- Local infrastructure to ensure data storage and data sovereignty is not yet operational across the territory.
- Limited IT capacity on the authority side (headcount, operations, XR cybersecurity).
- Heterogeneous application landscape (interoperability/APIs not always “real-time 3D ready”).
- Persistent digital inclusion/divide issues (equipment/skills) → risk of excluding audiences.
- Uncertain business model for publishing/maintaining virtual worlds (recurring server, licence and content costs).
- Usage governance : lack of an internal reference framework on ethics, GDPR and digital sobriety for XR/metaverse.

RISKS

- Cybersecurity : heightened exposure to cyberattacks, avatar hijacking, theft of personal data.
- Limited interoperability : difficulty connecting the metaverse with other public digital services.
- Ethical and societal risks :
- Digital exclusion : some groups (older adults, vulnerable people, those without equipment) may be left behind.
- Access inequalities : need for costly equipment (VR headsets, powerful PCs, high-speed connectivity).
- Addiction / excessive use : risk of compulsive behaviours, especially among young people.
- Erosion of real social interactions : loss of direct human contact with the administration or community.

VISION OF THE INTEGRATED ACTION PLAN

Through its action plan, Nevers Agglomeration aims to be a pioneer in adopting immersive digital technologies in order to strengthen ties with its citizens and to anticipate tomorrow’s uses.

By creating a territorial metaverse environment, it seeks to establish a shared virtual space, accessible to all, where residents, businesses, associations and public services can interact, access information and co-build the territory’s future.

“One must always know the limits of the possible—
not to stop there, but to attempt the impossible under the best conditions.”
— Romain Gary, Charge d’âme, 1977

WHY NEVERS IS TURNING TO THE METAVERSE

Nevers Agglomeration's Action Plan builds on the city's 2020–2026 digital roadmap to promote new technologies such as the metaverse, AI and digital twins, and to position Nevers as an innovative, attractive and connected city.

Why the metaverse?
• Differentiation : few cities in France already have a metaverse space — an opportunity to be a pioneer.
• Territorial innovation : strengthen the image of a modern, tech-driven agglomeration open to new digital uses.
• Tourism & economic appeal : offer a novel immersive experience that complements the physical visit and attracts new audiences.
• Broader accessibility : reach audiences beyond local boundaries by enabling remote connection.
• Heritage enhancement : showcase emblematic sites that are sometimes little known (Ducal Palace, Espace Bernadette, local artworks).
• Economic dynamism : generate spillovers around tourism, culture and gastronomy (local partnerships, returns).

Operational activities (3–5-year horizon) :
• Develop a test action to familiarise target audiences with immersive tools.
• Develop an immersive platform available across devices :
– The Metaverse space will integrate different virtual environments and interactive 3D elements, available on site first, then remotely.
– The public will discover emblematic places (Espace Bernadette Soubirous, Ducal Palace rooms, temporary works by local artists, etc.) through a gamified, interactive journey; they will also be able to relive major flagship events with an economic focus taking place in the territory.

Final objective : increase Nevers' visibility and visitor numbers, highlight still little-known heritage resources, and strengthen Nevers' reputation as a territory of technological innovation. Few cities today are equipped with a metaverse space.

Two-phase deployment :
• Phase 1 (on-site) : a metaverse scenario available via VR headsets gives access to interconnected virtual spaces and showcases the agglomeration's attractions in one place. Users can interact with, create and modify 3D objects along the journey via an engaging decision tree.
• Phase 2 (remote scale-up) : the metaverse becomes accessible to a much larger audience via a simple PC or VR headset; visitors take on an avatar and enter the virtual space, interact with teams and create digital content (quizzes, notes, reviews) to encourage physical visits to the city. This innovative phase will require a pilot with several user groups (e.g., load testing of concurrent server instances, visitor-group management and routing rules). It can run in parallel with Phase 1 as a pilot/prototype to collect long-term feedback on ergonomics, rendering, and functional/technical experience before full rollout.

INTEGRATED APPROACH

What is an Integrated Action Plan (IAP)?

An Integrated Action Plan (IAP) is a document that sets out the actions to be implemented, specifying timelines, responsibilities, costs, sources of funding, monitoring indicators and risk assessments. It is therefore a policy instrument that can be used to respond in a concrete way to a policy challenge.

Every IAP is unique in terms of local context, theme and scope.

How is it produced? (URBACT method)

It is developed using URBACT methods and results from a participatory process. The IAP is prepared with the stakeholders involved in the URBACT Local Group (ULG). The ULG coordinator normally leads the practical production process of the IAP, but ULG members may also write and review parts—or all—of the document.

Ideally, the Integrated Action Plan should reflect and bring together the knowledge and perspectives of all ULG members, as well as what they learn from transnational exchanges with other URBACT cities.

PROCESS DESCRIPTION

IN AN INTEGRATED ACTION PLAN, “INTEGRATED” MEANS :

➜ Positive externalities.
➜ Considering social, economic, physical and environmental dimensions.
➜ Working beyond departmental silos.

Using the URBACT method, the working group was formed by inviting all stakeholders concerned by the metaverse : other municipal departments, representatives of the Bourgogne–Franche-Comté Region, higher education, as well as companies involved in the metaverse. They were associated with the project at one time or another.

The group’s work was both informed and guided by transnational meetings, which enabled partners to share their experience and benefit from their peers.

Date	Agenda	Participants
25/01/2025	URBACT project presentation; gather opinions and proposals from the Local Support Group; define the test action	Sandrine Cochet : NA; Alain Bourcier : Vice President NA; Christophe Lasserre : NA; Sofia Ruffin : CEO 5Discovery; Marc Sawiris : 5Discovery; Emmanuel Piol : Convard Sword; Philippe Cordier : VP NA
11/04/2024	Implement TEST action : deployment of metaverse and AI training tools	Sandrine Cochet : NA; Anne-Cécile Fradin : Campus Connecté Nevers Manager; Sofia Ruffin : CEO 5Discovery; Marc Sawiris : 5Discovery
29/04/2024	Project presentation and plan development	Sandrine Cochet : NA; Alain Bourcier : Vice President NA; Vanda Turczi : Region; Sofia Ruffin : CEO 5Discovery; Stéphane Brand : CEO Setile
05/06/2024	Immersive Culture Project	Sofia Ruffin; Vanda Turczi (Region BFC); France Guillemin (Region BFC); Anne-Claire Sanz (Region BFC)
05–06/12/2024	URBACT France meeting in Paris	—

SMALL-SCALE ACTION

Nevers Agglomeration aims to test the metaverse, Virtual Reality tools and Artificial Intelligence internally and with a targeted audience.
The development of our Connected Campus is a major asset for a region with an average higher-education offering. The objective is to attract a maximum number of students who may then stay in the area. We want to provide them with innovative, engaging and effective tools. Through immersive techniques, we aim to increase the attractiveness of our campus, our authority and our support structure for welcoming startups. Target audiences include students, municipal staff, elected officials, residents and our innovation hub.

We are currently deploying two training modules in VR and AI :

Public speaking module

- In an amphitheatre facing a virtual audience, you practise using your own presentations and pitches.
- When finished, an AI-powered audience asks questions and challenges your topic.
- In full immersion and interaction with the audience, you can test your presentations.
- You can view different performance indicators for your presentation.

Stress-management module
Provides time for relaxation and decompression in a VR environment.

TEST ACTION : Familiarise a target audience with immersive environments

Feedback on the test action :

One of the first building blocks of the future metaverse project at the heart of the IAP was an experiment carried out with the higher-education service, within Nevers Agglomeration's Connected Campus. A contract was signed to deliver it under the URBACT Small-Scale Action line (see Part 1, Chapter 6).

The first results were conclusive :

Immersion and realism

- Thanks to VR headsets, students are immersed in a realistic simulation of a conference room or an examining jury.
- The immersive environment reduces anxiety by recreating the conditions of a real oral exam.
- AI adapts the virtual audience (reactions, facial expressions, ambient noises) for a dynamic experience.

Personalised AI coaching

- AI analyses tone of voice, body language and speech rhythm, offering instant feedback.
- AI-generated questions simulate real exchanges and evolve based on the student's answers.
- The algorithm adapts to the learner's level, proposing progressive challenges.

Improved public-speaking skills

- VR allows unlimited rehearsal across different situations (pitch, presentation, interview).
- AI analysis identifies filler words, overly long pauses or lack of clarity.
- Students gain confidence by practising in a judgement-free immersive environment.

Performance tracking and analytics

- Detailed statistics are provided after each session (fluency, voice volume, discourse structure).
- The system tracks individual progress and recommends targeted exercises.
- Students can review and analyse their own performance on video.

Accessibility and flexibility

- Students can practise at any time, without needing a live audience.
- VR training is less costly than classic sessions with a coach.
- Ideal for shy or anxious people, who progress at their own pace.

This VR module transforms public-speaking training by making it immersive, interactive and effective. It builds self-confidence, supports stress management and drives continuous improvement in oratory skills, with invaluable help from AI.

The partnership was renewed following this success, and the project is now being scaled to new audiences : startups and high-school students.

BREAKDOWN OF THE ACTION PLAN

Actions :

• Define and establish the legal framework for the Metaverse before engaging in actions that could be risky.

• Create a digital twin to support the METAVERSE platform :

Define a use case related to heritage.

• Define a use case linked to the events economy.

ACTION 1

Define the legal framework : T0

Ensure that the rules of digital law, intellectual property, contracts, and data protection (GDPR) are respected.

Creating a metaverse environment by a local authority is not just a tech innovation. It entails :

Compliance issues : GDPR compliance; protection of sensitive data (visitors, citizens, minors).

Contractual issues : selection and oversight of providers; subcontracting management; compliance with public-procurement law.

Intellectual-property issues : rights over 3D models, integrated cultural works, software licences and third-party content.

Liability issues : who is responsible in case of outage, technical incident, misuse or illicit content in the metaverse space?

Digital sovereignty : choice of hosts and suppliers to guarantee security, data reversibility and interoperability.

Specific domains to secure

Personal data protection : the metaverse may collect biometric and behavioural data. A GDPR audit is necessary.

Intellectual property & cultural rights : modelled monuments, works and artistic creations must be used with the rightsholders' consent.

Contractual framework : draft precise specifications to avoid vendor lock-in and clarify the allocation of rights and obligations.

Consumer law & accessibility : provide clear and fair user information and ensure accessibility for all.

Cybersecurity : include specific clauses on vulnerability management and protection against cyberattacks.

ACTION 2

Build the core of the Metaverse platform : the Digital Twin (T1)

Define objectives

Priority uses (tourism, heritage, citizen participation, education, public services).

Target audiences (residents, tourists, investors, students).

Selection of the heritage site that will form the visual backbone of the metaverse platform.

Technical design and modelling

Pilot phase : choose a limited perimeter (e.g., a historic district or heritage site) to test feasibility.
3D modelling : create realistic replicas with textures, animations and possible interactions.
Dynamic simulation : integrate real-time data (traffic, air quality, pedestrian flows) via IoT sensors.
Interoperability with the metaverse : ensure compatibility with immersive platforms (VR and AR).

Metaverse environment development

Interactive integration : turn the digital twin into an immersive space (VR/AR navigation, avatars, social interactions).
Gamificatio : design playful journeys (e.g., heritage discovery with scoring or cultural quests).
Accessibility : ensure use across devices (VR headsets, PCs, smartphones).
User testing : involve citizens, associations and schools to fine-tune the experience.

ACTION 2

Success factors for this first phase

Governance and organisational framework

• Project team : create a multidisciplinary unit (urban planning, culture, digital, communications).
• Partners : involve start-ups, universities, laboratories and digital artists.
• Legal framework : GDPR audit, copyright management, contractual clauses with providers.

Deployment and communication

• Progressive rollout : expand the scope (from the pilot site to the entire city).
• Citizen communication : workshops, demonstrations and exhibitions to foster adoption.
• Sharing and cooperation : embed the project within networks such as SIIViM to exchange good practices.

Monitoring and continuous improvement

• Dashboards : measure usage, attendance and socio-economic impacts.
• Maintenance : regularly update datasets (urban planning, heritage, events).
• Evolvability : integrate new technologies (generative AI, holography, blockchain for data traceability).

ACTION 3

Develop citizen-centric use cases : enable innovative experiences

SIIViM : a permanent space for innovation and cooperation in the metaverse

SIIViM

• Develop a metaverse platform around SIIViM (International Summit of Innovation in Medium-Sized Cities) to extend its impact beyond physical meetings and position Nevers (and partners) as a reference digital hub.
– Expected benefits
– Global accessibility : participation without geographic constraints.
– Ongoing valorization : SIIViM becomes a living platform beyond event dates.
– Stronger international cooperation : exchanges among European and global medium-sized cities.
– Nevers' outreach : leadership in territorial digital innovation.

Strategic objectives

• Broaden SIIViM's audience by enabling remote, immersive participation (citizens, elected officials, international startups).
• Strengthen the attractiveness of medium-sized cities by showcasing their innovations in a shared digital space.
• Facilitate international exchanges through multilingual, interactive environments.
• Leverage SIIViM content (conferences, demos, booths) by making it permanently accessible in the metaverse.
• Position Nevers as a pioneer in digital innovation and territorial experimentation.

HOW

• Create a digital twin of the summit.
• Provide each exhibitor with metaverse content.

ACTION 3

Develop citizen-centric use cases : enable innovative experiences

E-GAMES — Create a “Nevers eGames Metaverse” : an immersive hub to play, learn, host tournaments, visit stands, showcase local talent and attract international partners.

Visibility & outreach : Extend the reach of Nevers and eGames beyond the physical event.

- Community engagement : Mobilise players, high schools, universities and clubs.
- Economic attractiveness : Sponsors, studios, digital tourism.
- Education & inclusion : Digital literacy, diversity, accessibility.
- Responsible monetisation : Virtual ticketing, booths, naming rights, premium content.

ACTION 3

Develop use cases for the benefit of citizens : enable an innovative experience

Heritage : a permanent space for innovation and cooperation in the metaverse.

Create tourist modules

“The Ducal Palace Through the Ages”

Objective

• Make the palace’s architectural evolution—and its role as the gateway to the Loire—easy to understand.

Creation of a module for popularizing digital elements: THE DATA CENTER of Nevers

Objective:

To create an immersive and educational experience for visiting and understanding a data center

Key features

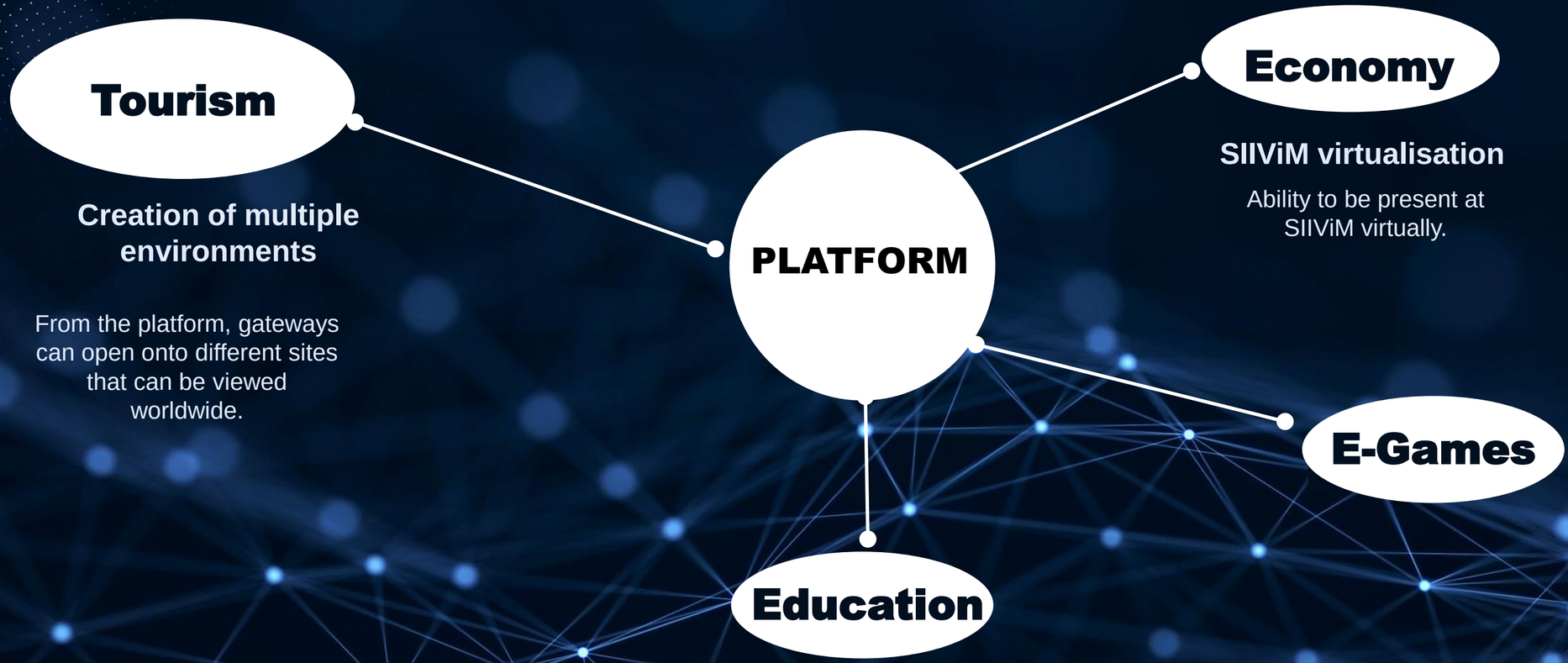
• Time travel (15th → 19th century → today) with AR overlays on virtual models.
• Gamified detail hunt (stonework, coats of arms, timber frames, stained glass) → points, family/school leaderboards.
• Crafts & know-how workshops : stonemason, glassmaker, carpenter (mini-games, 360° “hands-on” videos).
• Panoramas (rooftops/gardens) with cultural hotspots and links to nearby events.

Understanding how a data center works and being able to interact with data and its storage process

Deliverables & KPIs

– Deliverables
– • Multi-layer scene (historical periods)
– • Mini-games & craft fact sheets
– • AR exports for on-site visits
– KPIs
– • Quest participation & social sharing
– • Correlated on-site footfall
– • Museum/shop revenue uplift

INFINITELY VARIABLE USE CASES



IMPLEMENTATION FRAMEWORK

Ensure rapid decision-making, rigorous execution and transparency towards stakeholders (actions, deadlines, responsibilities, costs, financing, indicators, risks).

Target Organization Chart

- **Steering Committee (COPIL)** – existing body (Chair : Innovation-elected). Roles : arbitration, budget prioritization, validation of quarterly milestones.
- **Program Management / Metaverse PMO** – new unit to be created : planning, risk monitoring, quality, reporting, coordination of public procurement.
- **Thematic Groups** :
  1. Legal & Compliance (GDPR, IP, contracts)
  2. Digital Twin & Data
  3. Immersive Platform & Integrations
  4. Content (heritage, SIIViM, eGames)
  5. Inclusion, Mediation & Communication
  6. Operations & Cybersecurity
- **Key Partners** : City of Nevers, Nevers Agglomeration, Campus Connecté, SIIViM, XR/3D startups, universities, tourist offices, cultural institutions.

RACI

- **Decide** : COPIL
- **Lead** : Metaverse PMO
- **Execute** : Work package leaders & providers
- **Control** : Legal/GDPR (DPO) + Finance
- **Inform** : ULG, member municipalities, partners, citizens

Continuous Stakeholder Engagement & Future of the ULG

URBACT places the integrated approach and participation at the heart of the IAP : the ULG evolves into a Local Implementation Group (GLMO) after the planning phase to ensure the continuation of the participatory approach beyond the project network.

Proposed Mechanisms :

- **GLMO (monthly) :** co-design workshops, user testing, feedback (agents, students, businesses, associations, culture, tourism).
- **Quarterly Open Forums :** public demonstrations, hackathons, indicator reporting, citizen consultation.
- **Participation Pact :** contribution charter, editorial calendar, inclusion mechanisms (elderly, digitally excluded groups).

Global Costs & Funding Strategies

Work Package	CAPEX (one-off)	Annual OPEX	Content
L1: Legal & Compliance	€20–30k	€10k	GDPR/DPIA audit, IP, contract models, cloud/cybersecurity clauses
L2: Pilot Digital Twin	€100–180k	€30–60k	Surveys, 3D site modeling, data pipelines
L3: Immersive Platform	€180–200k	€120–250k	Front/back-end development, WebXR/VR, hosting, moderation, SSO
L4: Content (heritage/SIIViM/eGames)	€100–300k	€50–120k	Scenarios, 3D assets, live/replay, gamification, accessibility
L5: Inclusion & Mediation	€40–90k	€40–80k	Workshops, user support, communication, accessibility
L6: Security & Operations	€30–70k	€60–120k	SOC/monitoring, backups, DRP, anti-DDoS, O&M

Funding Levers :

• Public: City / NA, BFC Region, State (digital transformation, culture/education), ERDF, EU programs (Digital Europe, Horizon Europe – XR/education), cultural sponsorship.
• Private: Sponsorship (naming of virtual spaces), partner stands, hybrid event ticketing, B2B/education training, responsible premium offers.
• Rules: Market phasing (work packages), reversibility & interoperability clauses (avoid lock-in), full cost (TCO) documented in the IAP.

Global Timeline

Period	Key Milestones	Results
T0 – T3 months	Establishment of COPIL/PMO, GDPR DPIA, procurement strategy, technical framework	Operational governance, initial risks under control
T4 – T9	Pilot digital twin (heritage site) + first content	3D version validated, user testing, adjustments
T10 – T18	Metaverse platform v1 (web + VR access), SIIViM pavilion & eGames v1	Public experiences, analytics v1
T19 – T30	Expanded content (heritage, tourism, culture), large-scale remote access, inclusion	Scaling up, SIIViM interoperability
T31 – T48	Industrialization, O&M, new verticals (education, mobility)	Sustainable service, stabilized governance

Risk assessment

The IAP requires a global assessment of likely threats (probability/impact) and mitigation measures, complementing risks managed at the action level.

Risk	Prob.	Impact	Mitigation Measures
Non-compliance GDPR/IP	M	H	DPIA, DPO involved, privacy-by-design, standard contracts, regular audits
Security breach	M	H	SOC/monitoring, pentests, segmentation, backups, DRP, MFA
Vendor lock-in	M	M/H	Open standards (IFC/CityGML/GLTF), reversibility clauses, containers
Low adoption / usage	M	M	GLMO co-design, iterative testing, digital mediation, accessibility
Cost / schedule overrun	M	H	Phasing, 'go/no go' milestones, risk margin, tooled PMO, suitable contracts
Limited interoperability	M	M	API first, modular architecture, integration pilots, sandbox
Inclusion & digital divide	M	M	Support schemes, relay equipment, 'lite' versions
Reputation / ethics	L/M	M	Charter, moderation, KPI transparency, governance of use

Monitoring & Evaluation (M&E)

In line with the PAI, clear monitoring indicators and a regular reporting framework should be established, including action dashboards and strategic KPIs.

Key Indicators :

- **Adoption & Usage:** monthly visitors, average session duration, user feedback, content reuse.
- **Accessibility & Inclusion:** share of priority audiences reached, mediation sessions conducted, compliance with accessibility standards (RGAA).
- **Culture & Tourism:** conversion of virtual visits into physical visits, visitor satisfaction, local economic impact.
- **Technology & Security:** system availability, response time, incident tracking, mean time to recovery (MTTR), compliance with security audits.
- **Financial:** committed CAPEX, OPEX, mobilized co-funding, partner revenues,

Governance Rhythm & Tools

- **Operational Committee (weekly):** monitoring risks, schedule, and quality.
- **Steering Committee (quarterly):** decision-making, arbitration, milestone validation.
- **GLMO (monthly):** user feedback, testing, and content prioritization.
- **Public Dashboard (quarterly):** key KPIs, progress updates, and roadmap.
- **Supporting Tools:** risk register, RACI matrices, backlog & sprints, business intelligence dashboards, document repository.

Expected Deliverables

- Governance note (organization chart, RACI, mandates).
- Multi-source financing plan & total cost of ownership (TCO).
- Quality & security framework (DPIA, security policy, disaster recovery plan).
- Roadmap (Gantt chart, milestones, success criteria).
- Program risk matrix (probability/impact, mitigation, ownership).
- M&E framework (KPIs, targets, verification sources, reporting calendar).