

D5.2 Adapted Monitoring Methodology for Each Pilot City (Braşov)

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STATEMENT OF ORIGINALITY

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1. ABOUT HUB-IN

1.1. MISSION

Hubs of Innovation and Entrepreneurship for the Transformation of Historic Urban Areas (HUB-IN) aims to foster innovation and entrepreneurship in Historic Urban Areas (HUA), while preserving their unique social and cultural identity and the environment.

The project adopts innovation and entrepreneurship as the main drivers of urban regeneration in HUAs and is fully aligned with the international agendas for Cultural Sustainable Development (UNESCO) and Cultural Heritage Strategy (Council of Europe).

In the first stage of HUB-IN, a network of Hubs of innovation and entrepreneurship will be developed in the HUAs of eight city partners (Belfast, Braşov, Genova, Grand Angoulême, Lisbon, Nicosia, Slovenska Bistrica, Utrecht) and in the second stage, the resulting methods and tools will be scaled up to a global network of HUAs in follower cities. The Hubs of Innovation and Entrepreneurship will test, demonstrate and pilot activities of co-creation and co-design in three main areas that hold potential for the Hubs' sustainable transformations: 1) Cultural and creative industries, 2) New lifestyles and 3) Endogenous Natural & Social Resources.

1.2. VISION

HUB-IN expects to contribute to reverse trends of abandonment and neglect of historic heritage in a systemic way through the creation of networks of Hubs where innovation will be the main driver. The project will also have a direct impact on the creation of new sustainable opportunities for local traditional businesses and for the development of new creative skills and jobs.

1.3. CONSORTIUM



Δήμος Λευκωσίας
Nicosia Municipality



Belfast
City Council



Cyprus
Energy
Agency



Agency of Braşov for the
Management of Energy and Environment



Universiteit Utrecht



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2. CONTEXT AND INPUTS

2.1. ABOUT THIS DOCUMENT

This document proposes the methodology for understanding and improving the benefits of Braşov's Hub over time. It sets out an overview of the theory underpinning the monitoring approach (including quantitative and qualitative techniques operating at different levels) and a detailing of specific indicators and their data collection processes.

Each city is responsible for its own data collection, analysis and reporting, with a nominated point of contact to carry this out. This guide is therefore intended to support the city's nominated person in this regard, as a granular handbook for monitoring their Hub and developed in parallel to their developing their action plans with key stakeholders.

The document draws on previous HUB-IN discussions, deliverables, stakeholder engagement, Work Package and city meetings and monitoring workshops to date, formed in conjunction with the city teams and stakeholders.

2.2. REFERENCES TO OTHER PROJECT DOCUMENTS

In order to put monitoring plans in context, it is beneficial to present the challenges to be addressed in the HUA, the proposed solutions for addressing them and the outcomes that are expected as a result. Each of these topics has been deeply explored in previous HUB-IN deliverables and by other Work Packages. To avoid duplication and keep master versions of the details in a single source, that content is not replicated here. Instead, readers seeking further information may wish to refer to www.hubin-project.eu/library, for example for:

<u>HUB-IN Framework</u>	the vision, values, concepts and synchronised actions cities take towards being 'HUB-IN Places'
<u>Current Landscape</u>	the common HUB-IN narrative for the point the cities are starting from
<u>Entrepreneurial Ecosystem</u>	the key elements and dynamics of heritage-based entrepreneurial ecosystems within Historic Urban Areas
<u>Roadmap</u>	the overarching vision, values and missions of each Hub, offering numerous project options to address those
<u>Action Plans</u>	the selected interventions being implemented, with specific goals, outcomes, steps and timelines
and more	on HUB-IN's empowering frameworks, theory, tools, networks, training and more...

3. OVERALL MONITORING APPROACH

3.1. KEY HUB-IN ELEMENTS

The HUB-IN project intends to address the long term decline and degeneration of Historic Urban Areas by using their cultural heritage as an engine of innovation and entrepreneurship, while still preserving their unique social and cultural identity and the environment.

For the purpose of focussing the monitoring and evaluation, this can be thought of as linking together several layers to be assessed:

- **the project's Expected Impacts**

the Grant Agreement sets out "Expected Impacts" common to all its cities:

- Expected Impact 1:
Reversing trends of abandonment and neglect of historic heritage in urban areas and landscapes
- Expected Impact 2:
New and tested blueprints for the socially and economically viable regeneration of European HUAs and cultural landscapes, with enhanced well-being, quality of life, social cohesion and integration
- Expected Impact 3:
Boosting heritage and culture-relevant innovation, creativity, entrepreneurship and light 'reindustrialization' of HUAs and cultural landscapes
- Expected Impact 4:
Cross-sector collaboration, creation of job opportunities and skills in cultural and creative sectors and innovative manufacturing linked to historic heritage

- **Entrepreneurial Ecosystem**

WP2's "[D2.7 Entrepreneurial Ecosystems in Historic Urban Areas](#)" (van Twuijver, M., Toxopeus, H., Bosma, N. and Munch, G., 2022) sets forth the key ingredients and elements of an Entrepreneurial Ecosystem for "what makes a HUB-IN place". HUB-IN Cities aim to develop these within their Historic Urban Area in order to foster heritage-driven innovation and entrepreneurship - for example Leadership, Knowledge, Finance, etc.

- **Action Plans**

Based on their progress through the programme's phases and co-creation with their stakeholders, each HUB-IN city develops targeted interventions (Action Plans) that seek to drive change for key beneficiaries and stakeholders, across dimensions such as placemaking, data collection, co-creation and community engagement, policy and regulation, art and creativity, sustainability.

3.2. THEORY OF CHANGE

As can be noted from the Expected Impacts, part of the change HUB-IN intends to drive is long-term in nature (e.g. reversing trends of abandonment) and also indirect (in the sense that HUB-IN may influence and contribute towards these but can not be said to have direct control over them).

Projects that intend to drive such long-term and indirect impacts face common challenges in determining with accuracy and credibility what level of change occurred due to the project rather than, for example, due to the numerous other causes at play from existing policies, projects, investments, and technological progress to wider trends within the HUAs, cities and regions.

As set out in D5.1 “Common Impact Assessment Framework”, such projects often use a Theory of Change approach. This approach maps and tests the intended change pathways for how longer term impacts will be contributed to. By collaboratively mapping the co-created vision in a logic model, this enables the identification of which change pathways are most suitable for monitoring in the short, medium and long-term, and a discussion on where to focus limited capacity. This provides identification of the most appropriate indicators to monitor, offering balanced insights in the following categories:

1. **output indicators:** data indicating the scale of the action plans. For example, the number of organisations participating in a network-building action, to understand if the action is generating traction and who with.
2. **outcome indicators:** deeper insight via quantitative or qualitative analysis, such as pre- and post- comparisons of business growth or community perceptions via interviews, questionnaires, focus groups, surveys etc. As a simple example, the level of change in business skills / conditions that organisations experienced as a result of the Accelerator.
3. **impact indicators:** longer term tracking of broader HUA indicators, for example comparing growth in industry turnover and jobs in the Creative and Cultural Sector against the trend expected from the previous 10 years. This data is often hardest to obtain as there is often no historic (e.g. 10 years of data) HUA baseline, and when data does exist the HUA boundaries do not match normal municipal datasets. Further, change in these indicators can not be said to be directly driven by HUB-IN due to numerous other initiatives, projects, policies, investments at play. Thus, the cities do not focus most of their monitoring effort here - however a few indicators can provide useful context for the wider environment.
4. **feedback loops:** reflexive assessments on lessons and adaptations. As a simple example, a quarterly assessment by the Hub team on how well a network-building action is progressing the HUA's broader entrepreneurial ecosystem, and what adaptations can be taken to further improve.

The role that these play within a Theory of Change are illustrated in Figure 1 below.

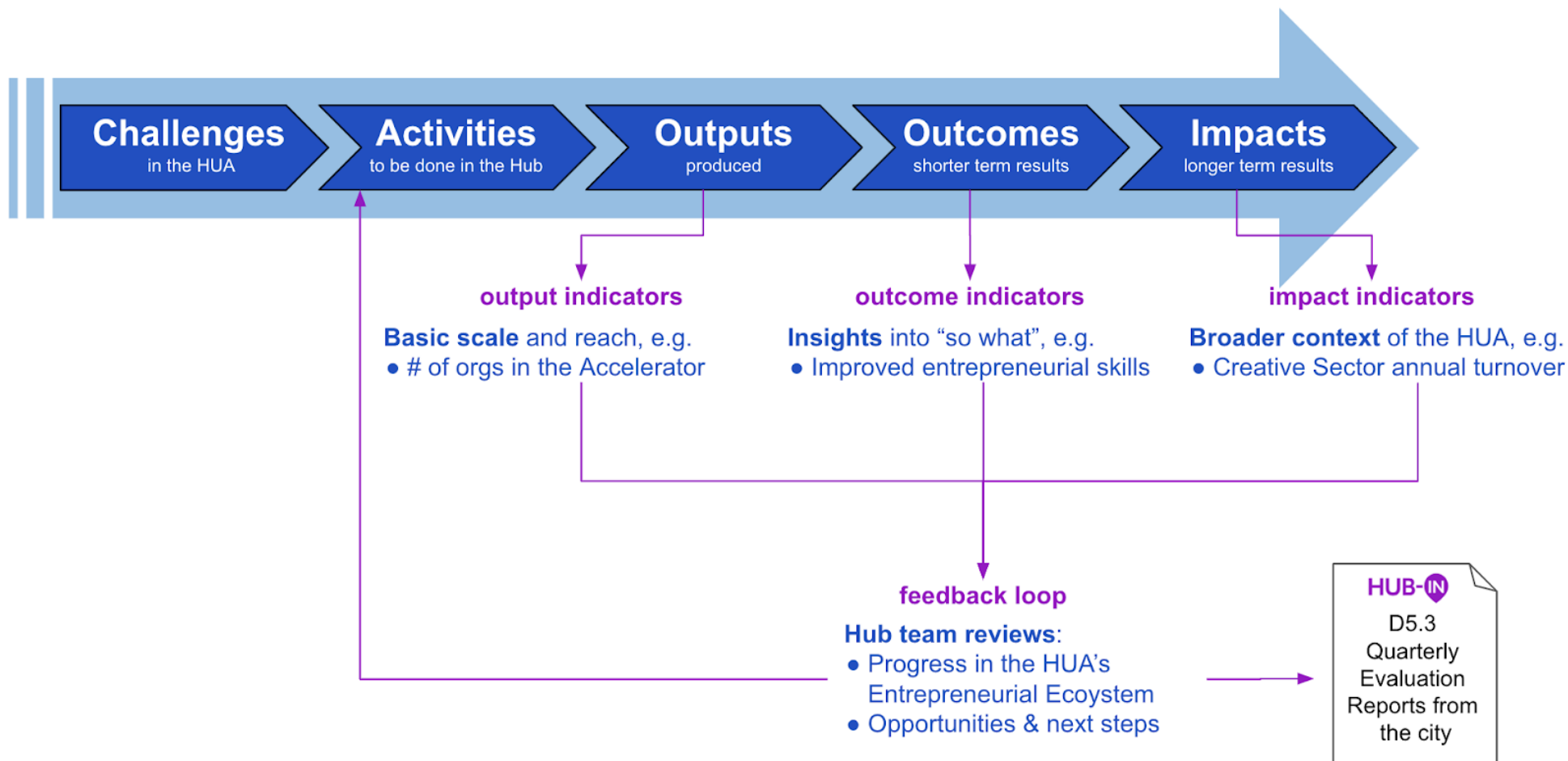


Figure 1: high level depiction of using a Theory Of Change logic model to identify where cities may most effectively blend their monitoring and evaluation effort for relevant and insightful monitoring. Details on Theory of Change and logic models are not duplicated here - for further reading see “D5.1 “Common Impact Assessment Framework”.

3.3. MONITORING MATERIALS

The practical application of the above is a set of monitoring materials in each city, provided in a “monitoring folder”:

1. A tailored logic model for their Action Plans
2. A data collection plan for prioritised indicators
3. Supporting materials such as draft questionnaires, surveys etc
4. A focus group guide for assessments of overall progress (feedback loops)
5. A quarterly report template

The report template will be provided to cities to support them in their monitoring. Each quarter, the core Hub teams will capture the current data for their indicators in the report, as an input to their “feedback loop” focus group on overall progress, opportunities, next steps and other insights. The sessions are designed for the core Hub team to minimise wider stakeholder fatigue, although stakeholders can be invited as needed and depending on the topics. Those focus group findings can also be logged in the report template - thus the materials work in sequence to assist cities with a low effort way of producing the D5.3 Quarterly Evaluation Reports.

4. TAILORED MONITORING PLAN

4.1. THE EXPECTED OUTCOMES AND LOGIC MODEL

As the city has progressed from its Roadmap to its intervention details, Slovenska Bistrica has confirmed its expectations on a number of targeted outcomes for its Action Plans. These are mapped to Entrepreneurial Ecosystem elements in Table 1 below.

N.B. in practice, outcomes can relate to more than one ecosystem element, and only for simplicity are shown here mapped on a one-to-one basis. In addition, HUB-IN does not expect cities' current Action Plans to target all Entrepreneurial Ecosystem elements at once.

Ecosystem Element	Expected Outcomes
Heritage	<ul style="list-style-type: none">• Improved energy efficiency of the lighting in the HUA• Improved attractiveness and social inclusion for local communities• Improved cultural awareness for local communities
Physical & digital infrastructures	<ul style="list-style-type: none">• More public space with less agglomeration, more coordination• More accessible terraces to fire fighters, ambulances etc
Marketplace / demand	<ul style="list-style-type: none">• Increased visitorship to heritage sites due to the lighting
Support organisations	<ul style="list-style-type: none">• [none yet / covered by other outcomes]
Human resources	<ul style="list-style-type: none">• Improved skill of future generations in participative urban planning
Knowledge	<ul style="list-style-type: none">• [none yet / covered by other outcomes]
Finance	<ul style="list-style-type: none">• [none yet / covered by other outcomes]
Leadership	<ul style="list-style-type: none">• [none yet / covered by other outcomes]

Urban culture	<ul style="list-style-type: none"> • Increased social inclusion, and feelings of belonging for community • Increased sense of place driven by the unified feel to the lighting
Entrepreneurial culture	<ul style="list-style-type: none"> • Increased visibility & inclusion for excluded entertainers & operators
Networks	<ul style="list-style-type: none"> • [none yet / covered by other outcomes]
Formal institutions	<ul style="list-style-type: none"> • [none yet / covered by other outcomes]

Table 1: the expected outcomes mapped against HUB-IN's Entrepreneurial Ecosystem elements (N.B. in practice, outcomes can map to more than one element).

These expected outcomes are mapped in a logic model, testing the link between Braşov's Action Plans, the outputs they produce, the outcomes they intend to drive for different stakeholders, and how these link to broader and longer-term economic, environmental, social and cultural visions and Expected Impacts of the project. See Figure 2 below.

To avoid duplication, details of the Action Plans are not replicated here - for further reading, please refer to the specific Action Plan documentation.

Braşov Hub's logic model

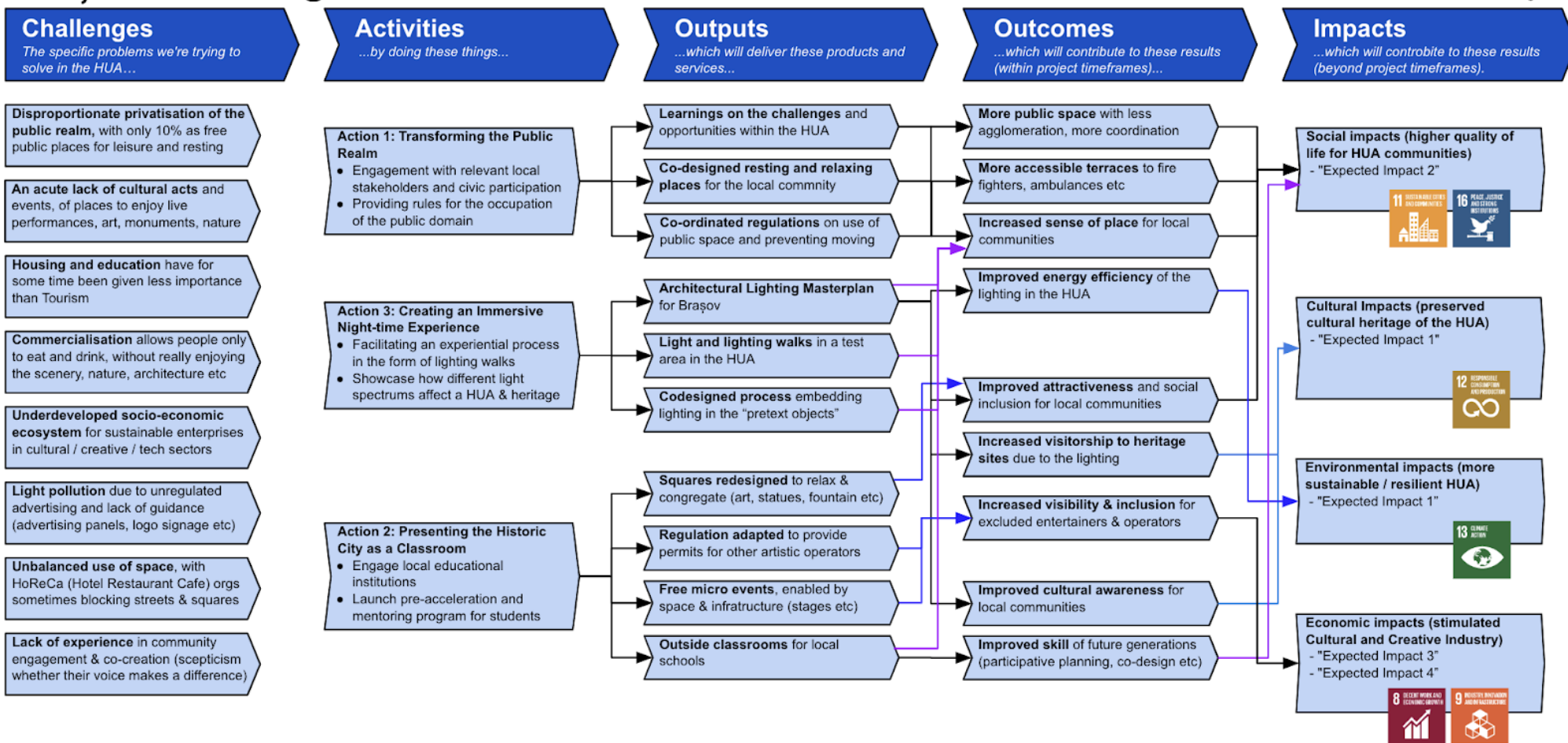


Figure 2: Braşov's logic model, illustrating the change pathways for the specific Action Plans' intended outcomes. This guides subsequent identification of monitoring indicators for priority outcomes.

4.2. PRIORITISED OUTCOMES

The Hub logic models contain a large suite of possible indicator options. Measuring every indicator for every outcome and impact in the logic model is not realistic or effort-effective. For this reason, Cities go through a process of shortlisting their priority indicators, with the criteria for that selection being:

1. **the outcome being monitored has a strong strategic fit with objectives**
i.e. monitoring the outcome will provide insights on the intervention's progress towards its objectives
2. **the Action Plans directly contribute to the outcome**
i.e. the outputs can be shown to directly drive or contribute to the outcome
3. **the outcome is expected to show a change during the project**
i.e. there is expected to be enough "signal" to detect a change with project timescales, and thus to justify measuring it.
4. **the outcome has a high expected ease of measurement**
i.e. the data is available and accessible in appropriate formats, timescales, accuracy and trustworthiness etc, and the city team has the required experience and resourcing to analyse it.

For Braşov, the prioritised outcomes selected were:

- Increased sense of place for local communities
- Improved attractiveness and social inclusion for local communities
- Improved skills for future generations of the HUA (participative planning, co-design etc)
- Improved energy efficiency of the lighting in the HUA

4.3. METHODOLOGY

For those outcomes, the monitoring methodologies and data collection plans agreed with the Hub team are summarised below (full details can be found in the Appendix). They are grouped by Action Plan as that aligns with the delivery owners in each city.

At time of writing, city Action Plans are undergoing some refinement (e.g. still defining the challenge areas of Open Calls or Accelerators etc), as a result the programme has acknowledged that precise monitoring indicators may adapt and remain open for now. The current view is presented here.

ACTION 1: Transforming the Public Realm

Outcome indicator: increased sense of place for local communities	
Land Use Study <i>(comparing 2022 baseline data to results of the Action Plan in February 2024)</i>	
Purpose	To obtain insights into the extent to which the HUA is a place for local communities as well as (not instead of) tourists.
Indicators	The partnering architects will provide comparisons between their 2022 data and new post-Action Plan data: <ul style="list-style-type: none"> • m2 of public realm "reclaimed" for free and public use (walking, enjoying) • decrease in proportion of total officially allowed space that is taken by HoReCA terraces • qualitative assessment of the change in proportion of the places destined for leisure and resting that are free to the public, via pre- and post- assessment of local land use map
Analysis	The Hub team compares changes since the 2022 data, in terms of total m2, proportions and a qualitative assessment.
Limitations	Interviews possible with the local businesses on the changes in land use from the results of the public realm regulation and reclamation of public realm - however change is not expected to be detectable until September / October 2024 (after the project ends).
Community Survey - change in perceptions <i>(pre-survey from 2022, post-survey from January 2024)</i>	
Purpose	To obtain insights into changes in perceptions amongst the local community in Braşov.
Parent population <i>i.e the group to whom to generalise findings</i>	Residents of Braşov.
Sample population <i>i.e. the group whom data is collected from</i>	A random sample of Braşov residents, weighted to represent population demographics. 385 completed responses in the pre- survey, conducted in 2022 via Braşov's 3rd party BrandBerry
Study design	Compare the changes in community responses in the pre- and post- surveys, across questions that involve Likert scores (1-5) and qualitative responses.
Indicators	Amongst other data, the survey has / will collect Likert data on: <ul style="list-style-type: none"> • attitudes of the HUA being untidy • attitudes of the HUA has a lot to do to look civilised • attitudes of the HUA needing cosmetic repairs

	<ul style="list-style-type: none"> attitudes of the HUA having too many tourists qualitative views on the characteristics of the HUA (e.g. its personality) demographics (age group, education, area of residence, income, own or rent status etc)
Analysis	The Hub team / BrandBerry compares differences in scores and responses between the 2022 data and post-survey in January 2024.

The Outcome indicators above are supported by the Output indicators below:

Output indicators <i>(from January 2023)</i>	
Purpose	To support the outcome above with evidence of the consultation process undertaken regarding the public realm regulations, and visual differences before and after.
Indicators	From the local architects (BAAB), ABMEE and municipality: <ul style="list-style-type: none"> number of stakeholders consulted, split by age, gender and student/citizen/private/public sector etc before and after pictures of micro sites
Analysis	Simple tracking of the figures each quarter.

ACTION 2: Presenting the Historic City as a Classroom

Outcome indicator: improved attractiveness and social inclusion for local communities	
Community Survey - change in perceptions <i>(pre-survey from 2022, post-survey from January 2024)</i>	
Purpose	To obtain insights into changes in perceptions amongst the local community in Braşov.
Parent population <i>i.e the group to whom to generalise findings</i>	Residents of Braşov.
Sample population <i>i.e. the group whom data is collected from</i>	A random sample of Braşov residents, weighted to represent population demographics. 385 completed responses in the pre- survey, conducted in 2022 via Braşov's 3rd party BrandBerry. (This is the same survey mentioned in Action Plan 1 above - here the relevant questions to this Action Plan are considered).
Study design	Compare the changes in community responses in the pre- and post- surveys, across questions that involve Likert scores (1-5) and qualitative responses.
Indicators	Amongst other data, the survey has / will collect Likert data on: <ul style="list-style-type: none"> attitudes on the HUA being a good place to live attitudes on the HUA needs tourists directed to other places attitudes on the HUA gives a sense of identity / feeling of belonging attitudes on the HUA being family friendly attitudes on the cultural art / opportunities being an asset of the HUA perceptions of environmental sustainability of the HUA, climate change adaptation and

	<p>mitigation measure in place</p> <ul style="list-style-type: none"> • rating of problems in condition of street furniture, behaviours of teens and young people, ability to organise cultural events, ability to attract and organise events • frequency of engagement in artistic and cultural activities in the area (painting, sculptures, crafts, music, dance, book club, museums, exhibitions, or similar) • demographics (age group, education, area of residence, income, own or rent status etc)
Analysis	The Hub team / BrandBerry compares differences in scores and responses between the 2022 data and post-survey in January 2024.
Pre-text Objects Public Space Study <i>(pre-installation in May 2023, post-installation in December 2023)</i>	
Purpose	To obtain insights into changes in community engagement with the public squares, before and after pre-text objects are installed.
Study design	Pupils from schools engaged in the pre-text design and outdoor classroom activities will conduct a pre-intervention study interviewing residents and tourists in the public spaces. The pre- text objects launch in Dec 2023 / Jan 2024 with a public launch event, at which point the study may be repeated as a post- intervention comparison study.
Indicators	<p>The study includes qualitative and Likert score questions including on perceptions of:</p> <ul style="list-style-type: none"> • environmental sustainability of the HUA • lighting quality of the HUA • climate change mitigation measures in place • the HUA as being for the community (in contrast to excessive tourists) • engagement with arts and cultural events • congestion of the public spaces • knowledge of public and free resting spaces (benches etc) • dwell time • demographics of the public square visitors and motivations for visiting <p>The study may also include observations on behaviours for example the occupancy of the squares, the extent to which people mingle and interact etc.</p>
Analysis	Insights drawn from the pre- study and comparisons made with the post-study.
Limitations	The post- installation study is dependent on pupil availability to conduct the study. Further, the difference in season (May to January) may affect the results due to seasonal differences in temperature, events etc - conducting the post- study in a similar season as the pre- study (i.e. May 2024) is not currently possible within project timelines.
Pre-text Object QR Code Questionnaire <i>from December 2023</i>	
Purpose	To obtain insights into the Pretext Object usage by its community or tourist users.
Study design	The pre- text objects launch in Dec 2023 / Jan 2024 with public launch event - each object may include a QR code for users to scan. This will take them to online materials showing the stories behind the objects' creation. and can include a short questionnaire.
Indicators	<p>The questionnaire may include for example 3 questions including (TBC):</p> <ul style="list-style-type: none"> • extent to which the objects create a space for local community (Likert score) • extent to which the objects create engagement / awareness of local artistic operators (Likert) • simple demographic: whether tourist or community

Analysis	Insights into the aggregate results.
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Outcome indicator: improved skills for future generations of the (participative planning, co-design etc)

Pupil Questionnaire

(pre-survey from March 2023, post-survey from July 2023)

Purpose	To obtain insights into changes in awareness, knowledge and skills amongst high school and uni-age pupils engaged in “outdoor classrooms” with the pretext objects
Sample population <i>i.e. the group whom data is collected from</i>	The pupils who attend the outdoor classes - expected to be approximately 20 across 5 or 6 local schools each holding at least 1 class each, depending on involvement.
Study design	Compare the changes in responses in the pre- and post- surveys, across questions that involve Likert scores (1-5) and qualitative responses.
Indicators	<p>Amongst other data, the questionnaire will collect Likert data on:</p> <ul style="list-style-type: none"> • change in knowledge of how lighting helps security • change in knowledge of how lighting helps energy efficiency • change in knowledge of how lighting designers value heritage • change in skills in designing lighting plans for heritage • change in skills of how to develop a map of an area for urban planning • change in awareness of named heritage locations in Brasov • change in skills in interviewing • change in skills in fieldwork in heritage locations • change in knowledge on energy efficiency, green solutions and their role in urban design • additionality of the HUB-IN Action Plan <p>And more qualitative data on:</p> <ul style="list-style-type: none"> • plans for using these skills in future (careers etc) • unexpected positive or negative outcomes • improvements to the pre-text objects <p>And demographics (age group, education, area of residence, income, own or rent status etc)</p> <p>The teacher also completes a similar but one-off questionnaire after each outdoor classroom, describing the pros and cons, suggested improvements, and the likelihood of holding another outdoor classroom.</p>
Analysis	The Hub team / BrandBerry compares differences in scores and responses between the 2022 data and post-survey in January 2024.

The Outcome indicators above are supported by the Output indicators below:

Output indicators

(from May 2023)

Purpose	To support the outcomes above with evidence of the innovation process and development of the pre-text objects with students, citizens and mentors.
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Indicators	<p>From the students involved:</p> <ul style="list-style-type: none"> case studies on the pretext objects (type, use, etc) <p>From the schools involved:</p> <ul style="list-style-type: none"> number of outside classes held number of students attending the outside classrooms, split by gender <p>From BAAB and ABMEE:</p> <ul style="list-style-type: none"> number of students attending the workshops and the summer school, split by gender number of events involving students number of pitches made number of tested prototypes number of mentors involved in the mentoring, split by entrepreneurs, investors, architects, public sector, and gender <p>From BAAB, ABMEE and the lighting designer</p> <ul style="list-style-type: none"> number of participants (pupils or citizens etc) learning about the lighting from the education-and-awareness walks number of pretext objects installed (including split of how many use technology such as lighting)
Analysis	Simple tracking of the figures each quarter.

ACTION 3: Creating an Immersive Night-time Experience

Outcome indicator: Improved energy efficiency of the lighting in the HUA	
Energy Consumption Study (from February 2024)	
Purpose	To obtain insights into the change in energy consumption and carbon emissions arising from the new lighting regulations.
Indicators	<p>From public sector lighting provider (Flash Lighting Services):</p> <ul style="list-style-type: none"> reduction in energy consumption due to lighting upgrades in public sector reduction in energy costs due to lighting upgrades in public sector reduction in carbon emissions due to lighting upgrades in public sector
Analysis	The lighting provider tracks the number of installations and upgrades in public sector buildings directly arising from the regulations, compares the change in efficiency and calculates the reduction in energy consumption. From this they can calculate reduction in energy cost (based on €/kWh) and carbon (based on tCO ₂ e/kWh).
Limitations	<p>Changes to lighting - and thus measurements on energy consumption and carbon emissions - are expected to happen after the end of the HUB-IN project timelines. Braşov can still benefit from tracking this data after the project, as sustainability is important to local strategy.</p> <p>The indicators here relate to public sector buildings because the Hub team has control over and direct insight into those - there is no equivalent direct control over, or insight into, how private organisations update their lighting. Private sector lighting is considered however in the below manual study of regulation alignment and violations.</p>

The Outcome indicators above are supported by the Output indicators below:

Output indicators <i>(from March 2022)</i>	
Purpose	To obtain insights into the uptake of the lighting regulation changes, and how that may affect the perceived attractiveness and safety of the area.
Indicators	<p>From Flash Lighting Services (manages public lighting):</p> <ul style="list-style-type: none"> • number of architectural lighting projects developed based on the masterplan principles • number of streets that change their lighting CCT values (current administration policy vs masterplan strategy vs after) • number of lighting installations / upgrades • number of heritage houses illuminated (that were not illuminated before, i.e. previously "hidden") <p>From HEBLU (lighting designer):</p> <ul style="list-style-type: none"> • manual assessment of number of violations of each regulation (e.g. wrong intensity, light overlapping building outline, wrong colours, wrong hours etc) <p>From BrandBerry, the light designer and ABMEE:</p> <ul style="list-style-type: none"> • number of participants involved in the co-creation process (route walks etc), split by gender, student/citizen/private/public sector etc <p>From the students involved:</p> <ul style="list-style-type: none"> • before, proposed & after pictures of architectural lighting projects <p>From one-off questionnaire to lighting trail walkers, gathering insights:</p> <ul style="list-style-type: none"> • satisfaction scores of local street lighting in the HUA, appearance of buildings, safety, quality of monuments and sights • frequency of visiting the HUA at night, including a breakdown by street • identification of areas of the HUA never visited at night, and reasons • extent to which advertisement lighting distracts from local architecture and heritage, or visiting the HUA • identification of areas of the HUA considered unsafe at night, and reasons • scoring of monuments as attractive / unattractive lighting • scoring of nighttime attractiveness of streets in the HUA • gender (age, gender, income, education, location of residence)
Analysis	Simple tracking of the numbers each quarter.

Table 2: data collection methods and indicators

See the Appendix for:

- the indicators' specific data collection units, sources, frequencies of measurement, and collection start dates
- the indicators mapped to economic, environmental, social and cultural dimensions

4.4. “COMMON” INDICATORS

HUB-IN's Grant Agreement contained a number of indicators for the project, including some that cities are to measure as part of their monitoring and evaluation. Where possible and relevant, cities have agreed to these indicators and identified data sources. The project has also recognised that HUB-IN has evolved since the Grant Agreement (for example there is no longer an “Invention module”), and that the precise indicators and expected data sources are therefore sometimes no longer appropriate. Thus the project has agreed that cities do not need to spend effort collecting data that is no longer relevant, but will only collect data for the indicators that are still suitable and appropriate for their Hubs and actions. Where relevant, these are set out below.

Indicator	Data collection plan			
	Unit	Source	Frequency of measurement	Target
EXPECTED IMPACT 1: Reversing trends of abandonment and neglect of historic heritage in urban areas and landscapes				
Number of Local Associations and Local Community Groups committed with HUB-IN at the local level from each HUB-IN pilot	#	Action Plan	once (at Action Plan stage)	10-15
Number of initiatives designed and developed in each HUB-IN pilot for the regeneration of places & people	#	Action Plan	once (at Action Plan stage)	3-6
Number of local stakeholders participating in each co-creation workshop to co-design the tailored roadmaps	# per workshop	WP3 ENC	once (at Action Plan stage)	25-35
Number of ideation sessions or prototyping designed and developed in each HUB-IN pilot to boost creativity and cultural heritage led regeneration in three clusters	#	Action 2: Pre-text idea Open Call	quarterly	24-42
EXPECTED IMPACT 2: New and tested blueprints for the socially and economically viable regeneration of European HUAs and cultural landscapes, with enhanced well-being and quality of life, social cohesion and integration				
Number of local stakeholders participating in the development of HUB-IN pilot Action Plans	# per workshop	Action Plan	once (at Action Plan stage)	25 - 35
% of women and elderly residents engaged in the initiatives for the regeneration of places & people	% per initiative	Community survey	quarterly	30 - 40
Number of external local projects or programmes linked to the eight HUB-IN pilots for possible cross fertilization	#	municipality	once (at Action Plan stage)	15
EXPECTED IMPACT 3: Boosting heritage and culture-relevant innovation, creativity, entrepreneurship and light 'reindustrialization' of HUAs and cultural landscapes				
Number of ideas or solutions explored or prototyped during the invention process in the eight HUB-IN pilot	#	NA - no invention process	NA	5 - 7
Number of ideas or solutions explored during the Accelerator programs in the eight HUB-IN pilots	#	Action 2: Pre-text idea Open Call (idea generation stage from students)	quarterly	9 - 10
# of start-ups offering solutions or services related with the three strategic clusters of activities	#	NA - no Accelerator	once (at application stage)	7
EXPECTED IMPACT 4: Cross-sector collaboration, creation of job opportunities and skills in cultural and creative sectors and innovative manufacturing linked to historic heritage				
Number of products or services developed during the Accelerator programs for the eight HUB-IN pilot	#	Action 2: Pre-text idea Open Call (development stage from students)	quarterly	1 - 2
Transversal KPI 's for HUB-IN Impacts				
Expected financial leverage to ensure the HUB-IN pilots' activities beyond the project lifespan (euros)	€	City Team	quarterly	€ 1,000,000

Table 3: the indicators and data collection plan for HUB-IN's Common Indicators for cities to collect

4.5. FEEDBACK LOOPS (QUARTERLY HUB REVIEW AND REPORT)

HUB-IN's deliverables include D5.3 "Quarterly Evaluation Reports" from each city on progress and learnings. At quarterly intervals, the Hub team can capture the most recent data for their indicators and review them in order to draw out key insights, turning points, developments and next steps.

WP5 will provide each HUB-IN city with a standardised report template, which aims to capture key insights to date and a reflection from the Hub team on alignment with goals and next steps:

- **Activities and Outputs**

Progress to date and identification of turning points (important moments where something changes that helps or hinders the realisation of goals).

- **Outcome and Impacts**

Key insights gained from the monitoring of impacts and outcomes. Tactical adaptations and priorities for the short- and medium-term to reach the Hub's long-term goals.

- **Deepening the Ecosystem**

A view of new situations in the HUA (e.g. new initiatives, projects, policies, financing options, stakeholders), and likely influence on the Hub's actions and goals.

- **Learning and Next Steps**

Reflecting on all of the above, what are the key learnings, how will the Hub incorporate this into future project activities - specific actions and next steps to take.

These reviews can be facilitated with a member(s) of the core Hub team preparing the latest view of monitoring data, and then holding a focus group session to gather inputs on the above topics from the core Hub team. The outputs then form the content of the D5.3 Quarterly Evaluation Report, submitted to WP5 by the end of each quarter. WP5 will also hold quarterly check-in calls with the Hub team to see how the monitoring is progressing and discuss any challenges or opportunities.

The findings from these quarterly reports input to the programme's D5.4 "Final Economic, Social and Environmental Appraisal Lessons Learned" and D5.5 "HUB-IN Guidebook" for future HUB-IN cities.

4.6. RISK AND LIMITATIONS

As is to be expected with any project, there are some limitations to monitoring inherent in the reality of what data is available, accessible and relevant to the specifics of the interventions (Action Plans). Relevant risks and limitations are presented below, in addition to general ones in D5.1 “Common Impact Assessment Framework”.

Risk / limitation	Mitigation
Pre- and post- studies are to be conducted of the public space and pre-text objects including community engagement and perceptions. However, whilst the pre- study takes place in summer 2023, the post-study takes place in December 2023 / January 2024 - different seasons which may affect perceptions and usage.	Comparison of pre- and post- will need to consider the role that season and weather plays in the public square usage and user perceptions. A post-installation study may be conducted in a comparable season in May 2024 - but this is too late for the project reporting period.
The public realm regulations are not expected to drive on-the-ground change in public space usage until autumn of 2024 - this is at / after the end of HUB-IN.	Interviews are planned by the Hub team with the local businesses on the changes in land use from the results of the public realm regulation and reclamation of public realm - however this will not be until after the project ends.
The Braşov team is tracking a lot of data for the Action Plans, across multiple stakeholders (schools, architects, lighting designers, researchers, questionnaires etc). Potential risk that there is not enough capacity to analyse all the data.	The Braşov team may need to prioritise which data to collect / analyse in which case Outcome data is preferable to Output data.
Changes in HUA lighting (and therefore measurable decreases in energy consumption and carbon emissions) are not expected to occur by the end of the project.	Report on what is measurable within project timelines, and include post-project reporting as an option for the Braşov team to continue with after the project.
Effort burden on cities for collecting monitoring data across up to four Action Plans, the HUA and the Grant Agreement indicators - constraints around available capacity and experience	Intention to make effort most effective for city teams by providing support on their monitoring plans: materials, suggested indicators and data sources, workshops on where to focus effort, templates and quarterly check-in calls. As Action Plans evolve cities may prioritise which indicators to monitor, and length of questionnaires / interviews etc. Although monitoring requires effort, the benefits should not be overlooked.
Willingness of Hub stakeholders to participate in recurring iterative monitoring sessions and assessments (stakeholder fatigue).	Stakeholder fatigue is recognised as a risk. Rather than require all stakeholders to attend quarterly report focus groups, the sessions are designed primarily for the core Hub team - they can review stakeholder data already provided and bring in stakeholders ad hoc as is appropriate to the topics discussed. Where appropriate, indicators in the Action Plans may involve

	interviews with these stakeholders, thus capturing insights at an appropriate time for the appropriate topic and minimising “standing requirements” for their repeated participation in reviews.
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Table 4: risks and potential limitations of the monitoring

5. RESPONSIBILITIES & NEXT STEPS

Implementing the above occurs in line with the fuller details of the interventions contained with the Action Plans. Regarding monitoring, the key roles and timings are set out here.

Key roles:

- **Leea Mihaila, Anca Grigore, Mariana Țițărean (ABMEE Brașov)** - owning the monitoring for the Hub in terms of data collection, analysis, interpretation and reporting
- **local stakeholders as needed** - for insights, participatory learnings and adaptations, to be brought in as and when is suitable by the Hub team
- **Chris Taylor (WP5)** - quarterly check-ins with the Hub team on monitoring progress and their D5.3 Quarterly Evaluation Reports

Key dates for Hub teams:

Planned Issue Date <i>(depends on implementation dates)</i>	Monitoring item
2022	Community questionnaire - pre
Mar-23	Pupil questionnaire - pre
Mar-23	Teacher questionnaire
May-23	Pre-text Objects Public Space Study
Jul-23	Pupil questionnaire - post
Dec-23	Pre-text Object QR Code Questionnaire
Jan-24	Community questionnaire - post
Feb-24	Energy Consumption Study

- **by end June 2023** - Quarterly Evaluation Report completed & sent to WP5
- **by end Sep 2023** - Quarterly Evaluation Report completed & sent to WP5
- **by end Dec 2023** - Quarterly Evaluation Report completed & sent to WP5
- **by end Mar 2024** - Final Evaluation Report completed & sent to WP5. Final date for Hub teams to send data and insights for inclusion in the project's final monitoring report D5.4 "Final Economic, Social and Environmental Appraisal and Lessons Learned" and D5.5 "HUB-IN Guidebook".

6. APPENDIX

6.1. INDICATORS AND DATA COLLECTION DETAILS

The chosen indicators are grouped by Action Plan because this best aligns with the data collection owner:

Description			Data Collection Plan				
Indicator type	Indicator	Stakeholder groups benefitting	Unit	Data source	Frequency of measurement	Target	Data collection start date
Action 1: Transforming the Public Realm							
OUTCOME: Increased sense of place for local communities							
Outcome indicators	m2 of public realm "reclaimed" for free and public use (walking, enjoying)	local community	m2	BAAB	total number between Action launch and March 2024	NA	March 2023
	change in proportion of total officially allowed space that is taken by HoReCA terraces	"	%	"	compare 2022 and 2024 versions	less than 150%	March 2023
	qualitative assessment of the change in proportion of the places destined for leisure and resting that are free to the public, via pre- and post- assessment of local land use map	"	map	BAAB study (map)	compare 2022 and 2024 versions	NA	pre: 2022 post: Feb 2024
	change in community perceptions, via a "before" and "after" community survey:	"	[as per survey questions]	BrandBerry	pre- and post-surveys	398	pre: 2022 post: Jan 2024
	– attitudes of the HUA being untidy	"	Likert (1-5)	"	"	"	"
	– attitudes of the HUA has a lot to do to look civilised	"	"	"	"	"	"
	– attitudes of the HUA needing cosmetic repairs	"	"	"	"	"	"
	– attitudes of the HUA having too many tourists	"	"	"	"	"	"
	– qualitative views on the characteristics of the HUA	"	"	"	"	"	"
Output indicators	demographics (age group, education, area of residence, income, own or rent status etc)	"	checklist	"	"	"	"
	number of stakeholders consulted, split by age and gender and student/citizen/private/public sector etc	local community	# of stakeholders (and photos)	BAAB, ABMEE and municipality	ongoing, and pre-Reg, during and after	NA	Jan 2023 to March 2023
	before and after pictures of micro sites	"	photos	BAAB	before and after dates (in and out of tourist season)	"	TBC per Action Plan implementation dates

Description			Data Collection Plan				
Indicator type	Indicator	Stakeholder groups benefitting	Unit	Data source	Frequency of measurement	Target	Data collection start date
Action 2: Presenting the Historic City as a Classroom							
OUTCOME: Improved attractiveness and social inclusion for local communities							
Outcome indicators	change in community perceptions, via a "before" and "after" community survey (same survey as referenced in Action Plan 1 above)	local community	[as per survey questions]	BrandBerry	pre- and post-surveys	398	Feb / March 2024 (results by end of March 2024)
	– attitudes on the HUA being a good place to live	"	Likert (1-5)	"	"	"	"
	– attitudes on the HUA needs tourists directed to other places	"	"	"	"	"	"
	– attitudes on the HUA gives a sense of identity / feeling of belonging	"	"	"	"	"	"
	– attitudes on the HUA being family friendly	"	"	"	"	"	"
	– attitudes on the cultural art / opportunities being an asset of the HUA	"	"	"	"	"	"
	– rating of problems in condition of street furniture, behaviours of teens and young people, ability to organise cultural events, ability to attract and organise events	"	"	"	"	"	"
	Change in community engagement with the public squares, including perceptions on:	local community	[as per survey questions]	sociology students	pre- and post-site interviews and observations	NA	pre: May 2023, post: Dec 2023
	– environmental sustainability of the HUA		Likert (1-5)	"	"	"	"
	– lighting quality of the HUA		Likert (1-5)	"	"	"	"
	– climate change mitigation measures in place		Likert (1-5)	"	"	"	"
	– the HUA as being for the community (in contrast to excessive tourists)		Likert (1-5)	"	"	"	"
	– engagement with arts and cultural events		Likert (1-5)	"	"	"	"
	– congestion of the public spaces		Likert (1-5)	"	"	"	"
	– knowledge of public and free resting spaces (benches etc)		Likert (1-5)	"	"	"	"
	– dwell time		checklist	"	"	"	"
	– demographics of the public square visitors and motivations for visiting		demographics	"	"	"	"
	Spot-check insights into community engagement with the public squares via QR codes, including perceptions on:		[as per survey questions]	QR codes on pre-text objects	ongoing	NA	December 2023
	– extent to which the objects create a space for local community		Likert (1-5)	"	"	"	"
	– extent to which the objects create engagement / awareness of local artistic operators		Likert (1-5)	"	"	"	"
	– simple demographic: whether tourist or community		demographics	"	"	"	"

OUTCOME: Improved skills for future generations of the (participative planning, co-design etc)							
Outcome indicators ▾	changes in awareness and skills amongst high school and uni-age pupils engaged in outdoor classrooms with the pretext objects, via a pupil questionnaire	students / future generations	per survey questions	pre- and post-questionnaire to students, BAAB	pre- and post-workshops	20, but TBC	pre: March 2023 post: July 2023
	– change in knowledge of how lighting helps security	"	Likert (1-5)	"	"	"	"
	– change in knowledge of how lighting designers value heritage	"	Likert (1-5)	"	"	"	"
	– change in skills in designing lighting plans for heritage	"	Likert (1-5)	"	"	"	"
	– change in skills of how to develop a map of an area for urban planning	"	Likert (1-5)	"	"	"	"
	– change in awareness of named heritage locations in Brasov	"	Likert (1-5)	"	"	"	"
	– change in skills in interviewing	"	Likert (1-5)	"	"	"	"
	– change in skills in fieldwork in heritage locations	"	Likert (1-5)	"	"	"	"
	– plans for using these skills in future (careers etc)	"	qualitative	"	"	"	"
	– unexpected positive or negative consequences	"	qualitative	"	"	"	"
	– additionality of the HUB-IN Action Plan	"	Likert (1-5)	"	"	"	"
	changes in awareness and skills amongst high school and uni-age pupils engaged in outdoor classrooms with the pretext objects, via a teacher questionnaire		per survey questions	questionnaire to teachers	each workshop	at least one per school in the HUA (5 or 6 schools exist, but TBC if they partner with the programme)	March 2023

	– change in knowledge of how lighting helps security		Likert (1-5)	"	"	"	"
	– change in knowledge of how lighting designers value heritage		Likert (1-5)	"	"	"	"
	– change in skills in designing lighting plans for heritage		Likert (1-5)	"	"	"	"
	– change in skills of how to develop a map of an area for urban planning		Likert (1-5)	"	"	"	"
	– change in awareness of named heritage locations in Brasov		Likert (1-5)	"	"	"	"
	– change in skills in interviewing		Likert (1-5)	"	"	"	"
	– change in skills in fieldwork in heritage locations		Likert (1-5)	"	"	"	"
	– unexpected positive or negative consequences		qualitative	"	"	"	"
	– suggested improvements and the likelihood of holding another outdoor classroom.		qualitative	"	"	"	"
Output indicators	case studies on the pretext objects (type, use, etc)	local community	qualitative	interviews with people there, led by students (interview guide developed by BAAB and municipality)	once over a few days	all students involved in the Action will participate in the interviews	May 2023
	number of outside classes held	students / future generations	#	participating schools	at least yearly (Action will repeat every summer)	at least one per school in the HUA (5 or 6 schools exist, but TBC if they partner with the programme)	June 2023
	number of students attending the outside classrooms, split by gender	"	#	participating schools	"	no target	June 2023
	number of students attending the workshops and the summer school, split by gender	"	#	BAAB and ABMEE	"	20	July 2023
	number of events involving students	"	#	"	"	no target	July 2023
	number of pitches made	students / future generations	#	"	quarterly	no target	Dec 2023
	number of tested prototypes	"	#	"	"	"	"
	number of mentors involved in the mentoring, split by entrepreneurs, investors, architects, public sector	"	#	"	"	"	"
	number of participants (pupils or citizens etc) learning about the lighting from the education-and-awareness walks	"	#	BrandBerry and Paul (the light designer) and ABMEE	after each walk	NA	25th March 2023
	number of pretext objects installed (including split of how many use technology such as lighting)	local community	#	"	"	"	"

Description			Data Collection Plan				
Indicator type	Indicator	Stakeholder groups benefiting	Unit	Data source	Frequency of measurement	Target	Data collection start date
Action 3: Creating an Immersive Night-time Experience							
OUTCOME: Improved energy efficiency of the lighting in the HUA							
Outcome indicators	change in energy consumption due to the lighting upgrades (will happen after the project)	environment	total reduction in kWh per year	Flash Lighting Services (manages public lighting)	between Action launch and March 2024	NA	Feb / March 2024 (results by end of March 2024)
	reduction in energy costs due to the lighting upgrades (public sector only)	"	€ per year	"	"	"	"
	reduction in carbon emissions due to the lighting upgrades (will happen after the project)	"	total reduction in tCO2e per	"	"	"	"
OUTCOME: Improved attractiveness and social inclusion for local communities							
Outcome indicators	number of architectural lighting projects developed based on the masterplan principles	"	#	Flash Lighting Services (manages public lighting)	total number between Action launch and March 2024	NA	March 2023
	number of streets that change their lighting CCT values (current administration policy vs masterplan strategy vs after)	"	#	"	"	"	"
	number of lighting installations / upgrades	"	#	"	"	"	"
	number of heritage houses illuminated (that were not illuminated before, i.e. previously "hidden")	"	#	"	"	"	"
Output indicators	manual assessment of number of violations of each regulation (e.g. wrong intensity, light overlapping building outline, wrong colours, wrong hours etc)	local community, heritage site operators	qualitative	HEBLU (lighting designer)	before masterplan is launched in March 2024	"	"
	number of participants involved in the co-creation process (route walks etc), split by gender, student/citizen/private/public sector etc	local community, public and private stakeholders	#	BrandBerry and Paul (the light designer) and ABMEE	after each walk	"	"
	before, proposed & after pictures of architectural lighting projects	"	photos	students involved (or as a back-up the HUB-IN team, or the company doing the Lighting Plan)	before and after dates (different times of evening)	"	"
	snapshot of trail-walker perceptions on lighting in the HUA		qualitative	questionnaire / focus group	after each walk	"	"
	snapshot of trail-walker perceptions on lighting in the HUA		qualitative	questionnaire / focus group	after each walk	"	"
	– satisfaction scores of local street lighting in the HUA, appearance of buildings, safety, quality of monuments and sights	"	1-5 scores	"	"	"	"
	– frequency of visiting the HUA at night, including a breakdown by street	"	checklist	"	"	"	"
	– identification of areas of the HUA never visited at night, and reasons	"	qualitative	"	"	"	"
	– extent to which advertisement lighting distracts from local architecture and heritage, or visiting the HUA	"	1-5 scores	"	"	"	"
	– identification of areas of the HUA considered unsafe at night, and reasons	"	qualitative	"	"	"	"
	– scoring of monuments as attractive / unattractive lighting	"	1-5 scores	"	"	"	"
	– scoring of nighttime attractiveness of streets in the HUA	"	1-5 scores	"	"	"	"
	– gender (age, gender, income, education, location of residence)	"	checklist	"	"	"	"

6.2. INDICATORS BY ECONOMIC, ENVIRONMENTAL, SOCIAL, CULTURAL DIMENSION

In this view, the chosen indicators are categorised according to economic, environmental, social or cultural dimensions:

Description			Dimension			
Indicator type	Indicator	Stakeholder groups benefitting	Economic	Environmental	Social	Cultural
Action 1: Transforming the Public Realm						
OUTCOME: Increased sense of place for local communities						
Outcome indicators ▾	m2 of public realm "reclaimed" for free and public use (walking, enjoying)	local community	Y		Y	Y
	change in proportion of total officially allowed space that is taken by HoReCA terraces	"	Y		Y	Y
	qualitative assessment of the change in proportion of the places destined for leisure and resting that are free to the public, via pre- and post- assessment of local land use map	"	Y		Y	Y
	change in community perceptions, via a "before" and "after" community survey:	"			Y	
	– attitudes of the HUA being untidy	"			Y	
	– attitudes of the HUA has a lot to do to look civilised	"			Y	
	– attitudes of the HUA needing cosmetic repairs	"			Y	
	– attitudes of the HUA having too many tourists	"			Y	Y
	– qualitative views on the characteristics of the HUA	"			Y	Y
	demographics (age group, education, area of residence, income, own or rent status etc)	"				
Output indicators ▾	number of stakeholders consulted, split by age and gender and student/citizen/private/public sector etc	local community				
	before and after pictures of micro sites	"				

Description			Dimension			
Indicator type	Indicator	Stakeholder groups benefitting	Economic	Environmental	Social	Cultural
Action 2: Presenting the Historic City as a Classroom						
OUTCOME: Improved attractiveness and social inclusion for local communities						
Outcome indicators ▾	change in community perceptions, via a "before" and "after" community survey (same survey as referenced in Action Plan 1 above)	local community				
	– attitudes on the HUA being a good place to live	"			Y	
	– attitudes on the HUA needs tourists directed to other places	"			Y	Y
	– attitudes on the HUA gives a sense of identity / feeling of belonging	"			Y	Y
	– attitudes on the HUA being family friendly	"			Y	
	– attitudes on the cultural art / opportunities being an asset of the HUA	"				Y
	– rating of problems in condition of street furniture, behaviours of teens and young people, ability to organise cultural events, ability to attract and organise events	"			Y	Y
	Change in community engagement with the public squares, including perceptions on:	local community				
	– environmental sustainability of the HUA			Y		
	– lighting quality of the HUA				Y	
	– climate change mitigation measures in place			Y		
	– the HUA as being for the community (in contrast to excessive tourists)				Y	
	– engagement with arts and cultural events					Y
	– congestion of the public spaces				Y	
	– knowledge of public and free resting spaces (benches etc)				Y	
	– dwell time					
	– demographics of the public square visitors and motivations for visiting					
	Spot-check insights into community engagement with the public squares via QR codes, including perceptions on:					
	– extent to which the objects create a space for local community				Y	
	– extent to which the objects create engagement / awareness of local artistic operators					Y
	– simple demographic: whether tourist or community					

OUTCOME: Improved skills for future generations of the (participative planning, co-design etc)						
Outcome indicators ▾	changes in awareness and skills amongst high school and uni-age pupils engaged in outdoor classrooms with the pretext objects, via a pupil questionnaire	students / future generations				
	– change in knowledge of how lighting helps security	"			Y	
	– change in knowledge of how lighting designers value heritage	"			Y	Y
	– change in skills in designing lighting plans for heritage	"			Y	Y
	– change in skills of how to develop a map of an area for urban planning	"			Y	
	– change in awareness of named heritage locations in Brasov	"			Y	Y
	– change in skills in interviewing	"			Y	
	– change in skills in fieldwork in heritage locations	"			Y	
	– plans for using these skills in future (careers etc)	"	Y		Y	
	– unexpected positive or negative consequences	"			Y	
	– additionality of the HUB-IN Action Plan	"			Y	
	changes in awareness and skills amongst high school and uni-age pupils engaged in outdoor classrooms with the pretext objects, via a teacher questionnaire					
	– change in knowledge of how lighting helps security				Y	
	– change in knowledge of how lighting designers value heritage				Y	Y
	– change in skills in designing lighting plans for heritage				Y	Y
	– change in skills of how to develop a map of an area for urban planning				Y	
	– change in awareness of named heritage locations in Brasov				Y	Y
	– change in skills in interviewing				Y	
	– change in skills in fieldwork in heritage locations				Y	
	– unexpected positive or negative consequences				Y	
	– suggested improvements and the likelihood of holding another outdoor classroom.					

Output indicators ▾	case studies on the pretext objects (type, use, etc)	local community				
	number of outside classes held	students / future generations				
	number of students attending the outside classrooms, split by gender	"				
	number of students attending the workshops and the summer school, split by gender	"				
	number of events involving students	"				
	number of pitches made	students / future generations				
	number of tested prototypes	"				
	number of mentors involved in the mentoring, split by entrepreneurs, investors, architects, public sector	"				
	number of participants (pupils or citizens etc) learning about the lighting from the education-and-awareness walks	"				
	number of pretext objects installed (including split of how many use technology such as lighting)	local community				

Description			Dimension			
Indicator type	Indicator	Stakeholder groups benefitting	Economic	Environmental	Social	Cultural
Action 3: Creating an Immersive Night-time Experience						
OUTCOME: Improved energy efficiency of the lighting in the HUA						
Outcome indicators	change in energy consumption due to the lighting upgrades (will happen after the project)	environment		Y		
	reduction in energy costs due to the lighting upgrades (public sector only)	"		Y		
	reduction in carbon emissions due to the lighting upgrades (will happen after the project)	"		Y		
OUTCOME: Improved attractiveness and social inclusion for local communities						
Outcome indicators	number of architectural lighting projects developed based on the masterplan principles	"		Y	Y	
	number of streets that change their lighting CCT values (current administration policy vs masterplan strategy vs after)	"		Y	Y	
	number of lighting installations / upgrades	"		Y	Y	
	number of heritage houses illuminated (that were not illuminated before, i.e. previously "hidden")	"		Y	Y	Y
Output indicators	manual assessment of number of violations of each regulation (e.g. wrong intensity, light overlapping building outline, wrong colours, wrong hours etc)	local community, heritage site operators				
	number of participants involved in the co-creation process (route walks etc), split by gender, student/citizen/private/public sector etc	local community, public and private stakeholders				
	before, proposed & after pictures of architectural lighting projects	"				
	snapshot of trail-walker perceptions on lighting in the HUA					
	– satisfaction scores of local street lighting in the HUA, appearance of buildings, safety, quality of monuments and sights	"				
	– frequency of visiting the HUA at night, including a breakdown by street	"				
	– identification of areas of the HUA never visited at night, and reasons	"				
	– extent to which advertisement lighting distracts from local architecture and heritage, or visiting the HUA	"				
	– identification of areas of the HUA considered unsafe at night, and reasons	"				
	– scoring of monuments as attractive / unattractive lighting	"				
	– scoring of nighttime attractiveness of streets in the HUA	"				
	– gender (age, gender, income, education, location of residence)	"				



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