

# UNICITIES



## PROJECT QUALITY PLAN

UniCities: Unlocking the Transformative potential of Ukrainian Universities towards climate neutral and sustainable cities

Project Ref. No.: 101083099 — UNICITIES — ERASMUS-EDU-2022-CBHE

<http://unicities.org.ua>



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Project partner responsible for the leading of work package:	KTH Royal Institute of Technology
Editor(s):	Olga Kordas, KTH
Contributor(s):	Stanislav Kukhtyk, ISTU Jaime Moreno Serna, UPM
Reviewer(s):	Viktor Kordas
Approved by:	PET

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## INTRODUCTION

The Project Quality Plan is an instrument to ensure that the deliverables produced in framework of the UniCities project have the desired quality in line with the ultimate goal stated for the project. The evaluation and quality assessment process will overview the project tasks and support project development as well as monitor the involvement of all project partners/stakeholders, monitor the work packages (tasks, timeframe, resources, etc.), improve the project results by comparing the identified objectives and the established processes/means as well as provide continuous feedback on the extent the project objectives are accomplished.

## 1. PROJECT OVERVIEW

### 1.1. Basic Data

UniCities is an institutional cooperation project co-funded by the European Commission in framework of ERASMUS program.

**Program:** ERASMUS2027, Key Action 2, CBHE

**Subprogram:** Joint Projects

**Project Title:** Unlocking the Transformative potential of Ukrainian Universities towards climate neutral and sustainable cities - UniCities

**Project Number:** 101083099

**Project website:** <http://unicities.org.ua>

### 1.2. Overall Objective of the project

The overarching goal of the project is to unlock the transformative potential of Ukrainian universities as catalysts and accelerators of systemic change in cities towards sustainability, resilience and climate neutrality through interdisciplinary, challenge-driven and collaborative education, research and innovation.

### 1.3. Project Specific Objectives

The specific objectives of the project are:

HO1. Help universities and their urban partners to build collaborative capabilities to accelerate climate transition in cities

SO1.1 Develop and facilitate a framework for systematic coordination, management and continuous improvement of university-city collaboration at four Ukrainian Universities

SO1.2. Provide insights and support shared learning from success, failures and obstacles of university-city collaborations in Ukraine, Spain and Sweden

SO1.3. Improve capacity of UniCities partners in systems innovation

HO2. Create innovative intermediate structures for new multi-stakeholder ecosystems at four Ukrainian universities to foster climate and sustainability transition in cities

SO2.1 Initiate and promote an inclusive co-creation process among faculty, students and urban stakeholders to design and nourish university-city collaboration centers at four Ukrainian universities

SO2.2 Establish university-city collaboration centers at four Ukrainian universities

HO3. Provide a neutral and trustful platform for dialogue and co-creation, and facilitate collaborative efforts towards climate neutrality and sustainability between researchers, students, cities, companies and civil society actors

SO3.1. Identify and plan for a transformative portfolio of research, innovation and education activities aimed at climate and sustainability transition in cities in collaboration between faculty, students and professionals

SO3.2. Create a point of reference, inspire new university-city collaborations, and inform discussions across the global higher education sector on the transformative role of universities in transition to climate-neutral and sustainable cities

HO4. Introduce interdisciplinary, challenge-driven and sustainability-oriented courses and learning activities to facilitate deep learning and empower students and stakeholders as sustainability change agents

SO4.1. Create momentum for student engagement through interdisciplinary, multi-stakeholder and challenge-driven summer schools that link architecture, urbanism, sociology, history and policy-making to elaborate strategies for global challenges in different local contexts in the cities of Eastern and Western Europe.

SO4.2. To equip students from different MSc programs with the key concepts, theories and methods within the areas of 'smart and sustainable cities' and 'climate change adaptation and mitigation strategies'

SO4.3. Provide students with hands-on experience in working on real-life challenges in multi-stakeholder settings through challenge-driven project- and MSc thesis work.



## 1.4. Project Duration

Start date:	February 1, 2023
End Date:	January 31, 2026
Duration (months):	36
Project Budget:	€744 363.00
Maximum EU Grant Amount:	€669 927.00

## 2. PARTNERSHIP, WORK-PACKAGES AND DELIVERABLES

### 2.1. List of partner organisations

Full partners:

1. KTH Royal Institute of Technology, KTH, Sweden
2. Universidad Politecnica de Madrid, UPM, Spain
3. National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute, NTUU KPI, Ukraine
4. Chernihiv National University of Technology, CNUT, Ukraine
5. Academician Yuriy Bugay International Scientific and Technical University, ISTU, Ukraine
6. Yaroslav Mudryi National Law University, NLUU, Ukraine
7. Charitable Fund CANactions - CO "CF "CANactions", Ukraine
8. All-Ukrainian Association of Local Government Authorities “Association of Ukrainian Cities” – AUC, Ukraine
9. Public union «Association of the engineers of stable energy technologies of Ukraine», AESETU, Ukraine
10. Ukrainian Research Hydrometeorological Institute, UHMI, Ukraine

### 2.2. Summary of Work Packages

The project’s activities are clustered into work packages (WP) and the leaderships have been allocated among the partners on the base of their own expertise in order to ensure the achievement of project’s results in line with quality management standards and local ownership of the project results.

WP	Name	Lead
WP1	Project management and quality assurance	KTH
WP2	Capacity building	NTUU KPI
WP3	Design and launch of university-city collaboration centres	CNUT
WP4	Piloting university-city collaboration	ISTU
WP5	Challenge-driven education and student engagement	NLUU
WP6	Dissemination and communication	ISTU

## 2.3. List of Deliverables

The project aims to produce following deliverables:

WP1: Project management and quality assurance

Deliverable D1.1: Project quality plan (M6)

Deliverable D1.2: Quality report (M36)

Deliverable D1.3: Project Management Plan (M3)

Deliverable D1.4: Consortium agreement (M6)

WP2: Capacity building

Deliverable D2.1: Learning report on university-city collaborative arrangements (M10)

Deliverable D2.2: Study visit to Viable Cities at KTH (M6)

Deliverable D2.3: Study visit to itd UPM (M10)

Deliverable D2.4: Online training session on systems innovation (M13)

WP3: Design and launch of university-city collaboration centres

Deliverable D3.1: Decisions on establishment of administrative units (centers, units within centers) at four Ukrainian universities (M18)

Deliverable D3.2: Launch event for University-City collaboration centers (M18)

WP4: Piloting university-city collaboration

Deliverable D4.1: White paper on the role of universities on transition to climate-neutral cities (M21)

Deliverable D4.2: Sustainability plan (M22)

Deliverable D4.3: Network agreement between centers in Ukraine, Sweden and Spain and the societal partners of UniCities open for relevant organization (M35)

WP5: Challenge-driven education and student engagement

Deliverable D5.1: Two interdisciplinary, challenge-driven summer schools “Shaping urban environments for tomorrow” (M22)

Deliverable D5.2: Interdisciplinary, project-based MSc level course (7,5 ECTS) “Smart Cities and climate adaptation and mitigation strategies” (M36)

Deliverable D5.3: Testimonies by students (M36)

WP6: Dissemination and communication

Deliverable D6.1: Dissemination plan (M6)

Deliverable D6.2: Website and visual identity (M6)

Deliverable D6.3: Social media tailored short videos for awareness campaign (M36)

Deliverable D6.4: Final project conference (M36)

## 3. QUALITY EVALUATION AND MONITORING

### 3.1. Quality management structure

Overall coordination of the quality work will be carried out by the leader of WP1 - KTH.

The Quality Evaluation and Monitoring Committee consist of 5 persons:

Jaime Moreno Serna, UPM, leader of the task

Olga Kordas, KTH, coordinator

Nataliia Lazarenko (AUC), responsible for quality assurance from gender equality perspective

Veronika Khudolei, ISTU, responsible for quality assurance and compliance with HEI regulations in UA

Viktor Kordas, KTH, WP1 leader

The Quality Committee will measure and advice on:

- Internal and External evaluator's role and process
- Dissemination, sustainability and exploitation strategy
- Communication and organization
- Periodic reviews and evaluations for project packages and tasks deliverables
- Support the project decision-making process by evaluating the results
- Identify risks and potential issues/obstacles related to the project implementation, and propose possible solutions.

### 3.2. Quality evaluation and monitoring

The three main pillars of the Quality work:

#### Internal Monitoring:

- Quality Assurance and Control Quality related responsibilities
- Quality assessment for education and training
- Risk Analysis and Contingency Plan

## External Monitoring

- Feedback from external stakeholders
- External Independent expert involved during the project implementation

**Satisfaction Surveys for monitoring the climate inside the project team and introducing improvements into the project operation.**

## 3.3. Internal monitoring process

Main objective of the internal QA plan is to monitor the project activities, timeliness and technical quality of the deliverables and results. The internal process is performed by partner institutions.

Tasks and Responsibilities:

WHO?

- Select the team members (based on the internal rules and regulations) for project activities
- Steering Group (WPSG) of each WP contributes to assuring quality
- WHAT? Set selection criteria for staff members and trainees

HOW is this done?

- Collect feedback from all participants
- Preparation and assessment of detailed work activities such as internal plans, reports and surveys, interviews, monitoring visit reports, training topics, etc .
- WPSG reviews all deliverables being produced within each Work Package and approves the final version to be published on the portal
- Collect the feedback on the achievements from the different Higher Education stakeholders at large.
- Exchange knowledge, experiences, and challenges

## 3.4. External monitoring process

- External quality assurance should address the effectiveness of the internal quality assurance processes
- External quality assurance should be defined and designed specifically to ensure its fitness to achieve the aims and objectives set for it, while taking into account relevant regulations.
- All partner universities should be involved in its design and continuous improvement.

The external evaluator will:

- Perform the external technical evaluation process of the project by monitoring the project progress to ensure that the quality of the project activities and outcomes are in accordance with the Erasmus+ regulations, rules and mission (effectiveness)
- Assess the appropriateness of the methodology/approach adopted by the project consortium to attain project objectives and the impact the project will have (efficiency)

General principles for external monitoring:

- Any outcomes or judgements made as the result of external quality assurance should be based on explicit and published criteria that are applied consistently, irrespective of whether the process leads to a formal decision.
- Improvement or changes suggestion will be considered by the project committee and the quality plan committee
- Full reports by the expert should be published, clear and accessible to the partner universities and other interested individuals
- The external evaluator shall be selected and presented to the project partners by November 2023.

## **3.5. Satisfaction surveys**

- Feedback mechanism for each work package, meeting and/or for the project as a whole
- Feedback based on the project plan and priorities/activities
- Result: overview on activities and results

## **3.6. Key quality indicators**

- Performed Work Packages and timeline - structure and contents
- Deliverables according to the project plan and resources - efficiency
- Partner involvement - internal impact
- External involvement - external impact
- Internal and external satisfaction levels - perceived quality level
- Tangible results - deliverables



## 4. PROJECT WORK BREAKDOWN STRUCTURE

### 4.1. Workplan

<b>Timetable (projects of more than 2 years)</b>												
<i>Fill in cells in beige to show the duration of activities. Repeat lines/columns as necessary.</i>												
<b>Note:</b> Use actual, calendar years and quarters. In the timeline you should indicate the timing of each activity per WP. You may add additional columns if your project is longer than 6 years.												
ACTIVITY	YEAR 1				YEAR 2				YEAR 3			
	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Task 1.1 - Project coordination												
Task 1.2 - Project meetings organization												
Task 1.3 - Quality management												
Task 1.4 - Reporting												
Task 2.1 - Analysis of success, failures and obstacles in current collaboration landscape												
Task 2.2 - Study visit to Viable Cities at KTH												
Task 2.3 - Study visit to itd UPM												
Task 2.4 - Online training session on systems innovation												
Task 2.5 - Sense-making workshop												
Task 3.1 - Setting-up a co-creation process												
Task 3.2 - University-city collaboration platform design (Strategy document, impact logic, work plan, organization and governance)												
Task 3.3 - University-city collaboration platform launch event												
Task 4.1 - Learning by doing and reflection												
Task 4.2 – Sustainability planning for university-city collaboration centers												
Task 4.3 – Establishing open inter-institutional collaboration to boost replication and scale-up												

Task 5.1 - Prototyping and testing two interdisciplinary, challenge-driven summer schools "Shaping urban environments for tomorrow"		■	■			■	■					
Task 5.2 - Developing and piloting an interdisciplinary, project-based MSc level course (7,5 ECTS) "Smart Cities and climate adaptation and mitigation strategies"		■	■	■	■	■	■	■			■	■
Task 5.3 - Designing and implementing challenge-driven project work and Master thesis					■	■			■	■	■	
Task 6.1 - Development of Dissemination plan for the project and for each institution	■	■				■				■		
Task 6.2 - Establishing visual identity, web and social media presence	■	■	■	■	■	■	■	■	■	■	■	■
Task 6.3 - Awareness campaigns for urban stakeholders					■	■		■		■		■
Task 6.4 - Content production and media relations	■	■	■	■	■	■	■	■	■	■	■	■
Task 6.5 - Final project conference											■	■

## 4.2. Detailed planning Year

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Deliverables		APRIL 23				AUGUST 23		OCTOBER 23			JAN 24		DUE DATE	
1															
2			Olga Kordas, Olga Kordas												
3	<b>D1.1 PROJECT QUALITY PLAN</b>					X								M36	
4	<b>D1.2 QUALITY REPORT</b>														
5	<b>D1.3 PROJECT MANAGEMENT PLAN</b>		X												
6	<b>D1.4 CONSORTIUM AGREEMENT</b>					X									
7	<b>D2.1 REPORT UNIVERSITY-CITY COLLAB</b>			IST conference			co-creation meeting			X					
8	<b>D2.2 STUDY VISIT TO KTH</b>		X	Report											
9	<b>D2.3 STUDY VISIT TO UPM</b>						agenda and contacts		X						
10	<b>D2.4 ONLINE SYSTEM INNOVATION</b>						1st topic brainstorm		agenda element					X	
11															
12	<b>D3.1 U. CENTERS ADMINISTRATIVE CONFIG</b>						preliminary needs identification		agenda element					M18	
13	<b>D3.2 U. CENTERS LAUNCH</b>											Starting creation process		M18	
14															
15	<b>D4.1 WHITE PAPER UNIVERSITY CITY COLLAB</b>											Outline draft		M21	
16	<b>D4.2 SUSTAINABILITY PLANS FOR THE CENTERS</b>													M22	
17	<b>D4.3 NETWORK AGREEMENT</b>													M35	
18															
19	<b>D5.1 SUMMER SCHOOLS</b>								agenda element			2024 edition outline		2024-25	
20	<b>D5.2 MSC COURSES</b>						planning visit to KTH					detailed designs and plan		M36	
21	<b>D5.3 STUDENT TESTIMONIES</b>													M36	
22															
23	<b>D6.1 DISSEMINATION PLAN</b>					X									
24	<b>D6.2 WEB+VISUAL IDENTITY</b>					X									
25															
26	<b>D6.3 SOCIAL MEDIA</b>						to be launches with web							M36	
27	<b>D6.4 FINAL CONFERENCE</b>													M36	
28															
29															
30															
31	(in red, 1st year deliverables)														
32															



## 5. Monitoring of transformative potential in UniCities.

UniCities is designed to unlock the transformative potential of Ukrainian universities as catalysts and accelerators of systemic change in cities towards sustainability, resilience and climate neutrality. Compared with traditional projects, the new transformative programmes aim for example at much longer, sometimes generational, time horizons with respect to the changes they want to contribute to. It is much harder to evaluate and assess transformative change in a short time frame as done with traditional projects. Moreover, transformative programmes are generally only one of many interventions and policies aiming at transformational change, which makes it difficult to causally attribute certain outcomes to a particular intervention. Not least, such programmes usually deal with 'wicked problems' for which no straightforward 'solution' exists, which makes it difficult to define appropriate criteria for success and which may be challenged by the sense of urgency that is often experienced with some societal challenges. UniCities consortium share this challenge with its partners Viable Cities (KTH, Sweden) and Cities2030 (UPM, Spain).

Therefore, UniCities is planning to participate in the development and testing of the formative monitoring methods and tools that are currently under development by the European partners.

The scoping position brief for this work is attached in the Appendix 1.

Appendix 1. Scoping position brief

## Monitoring transformative potential in UniCities

Drafted by Viable Cities experts: Olga Kordas, Harald Rohracher, Lars Martel Antoine Coenen



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## Monitoring transformative potential in UniCities

UniCities is a project co-funded by the European Union within Erasmus+ programme. It is designed to unlock the transformative potential of Ukrainian universities as catalysts and accelerators of systemic change in cities towards sustainability, resilience and climate neutrality. The project is built upon experiences of the impactful multi-stakeholder initiatives Viable Cities (KTH, Sweden) and citiES2030 (UPM, Spain) and expertise of a quadruple-helix partnership in Ukraine consisting of four Ukrainian universities covering complementary areas of education and research, NTUU KPI, CNUT, ISTU and NLUU, as well as societal partners including Association of Ukrainian Cities, CANaction NGO, AESETU – Association of the energy professionals representing major energy companies, and the academic research institute UHMI with focus on climate and environment.

In this background paper we provide some initial reflections that is geared to developing appropriate strategies for monitoring transformative change towards climate neutral and inclusive cities that are of importance for the collaborative activities between Universities, cities and other societal partners that are under development within UniCities. Transformative change is understood as deep and structural shifts to adapt urban socio-technical systems. It includes not only technological innovation but also corresponding changes in behavioural practices, cultural discourses as well as governing institutions. Working towards transformative urban change requires continuous processes of innovation, deliberation, adaptation and reflection.

Some of the greatest innovations of our time originate from the need to solve problems. Thus, the collaborative programmes should be modelled on the latest iteration in innovation policy thinking – focusing innovation efforts to solve societal challenges that involve technological change, institutional and behavioural change as well as regulatory change. This emphasis on solving societal challenges is also emphasized by the EU and its adoption of a mission-oriented approach to Research and Innovation<sup>1</sup>.

Even though the terminology may be slightly different, there is a growing convergence across scholars and practitioners that innovation policy should not only be concerned with economic productivity and growth but aim for transformation of production, distribution and consumption. This new paradigm has recently been coined as innovation policy 3.0<sup>2</sup>.

Innovation policy 1.0 – where innovation is part and parcel of science and technology policy -has been primarily directed to research and development (R&D) based innovation, drawing on a linear model of innovation that privileges the technological discovery process. It emphasizes as a rationale for policy the advancement and commercialisation of scientific and technological knowledge. Innovation policy 2.0,

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<sup>1</sup> Mazzucato, M. (2019). Governing Missions in the European Union. European Commission, DG Research and Innovation.

<sup>2</sup> Schot, J., & Steinmueller, W. E. (2018). Three frames for innovation policy: R&D, systems of innovation and transformative change. *Research Policy*, 47(9), 1554-1567.

underpinned by the systems of innovation approach and geared to objectives of economic competitiveness, growth and job creation, acknowledges a broader knowledge base for innovation, supports commercial use of a wider variety of knowledge and seeks to strengthen the link between discovery and application of knowledge. The most recent paradigm, innovation policy 3.0, involves the explicit mobilization of science, technology and innovation for meeting societal needs and addressing the United Nation's Sustainable Development Goals. It addresses the issues of sustainable and inclusive societies at a more fundamental level than previous framings or their associated ideologies and practices. In doing so, it pays greater attention to engaging citizens actively in innovation – highlights experimentation with multiple, bottom-up solutions and emphasises explicit directionality and transparency.

## Measuring innovation

Partly due to close linkages between innovation research scholarship and policy-makers, the evolution towards increasingly complex conceptual models underpinning innovation policy has gone hand-in-hand with more sophisticated and 'realistic' innovation measurement and indicators. This is readily illustrated through the development of the Oslo Manual aimed at providing rules to guide the measurement of innovation in ways that are reproducible over time and that give results comparable across jurisdictions.

The Oslo Manual was specifically set up by the OECD and Eurostat to assist in providing policy intelligence. The body that developed and regularly revises the manual is the OECD Working Party of National Experts on Science and Technology Indicators (NESTI). Its participants are experts who cover a spectrum of producers of innovation statistics and indicators to users of innovation indicators in the policy process. Since 1992 the most extensive implementation of the manual can be found in the Community Innovation Survey (CIS) of the European Union<sup>3</sup>.

The CIS measures and aggregates innovation activity at the firm / enterprise level. It distinguishes between different types of innovation, patterns of co-operation, objectives and barriers to innovation. In policy-making, the CIS measurement of innovation has become a common tool to arrive at granular insights regarding key failures in the innovation system that require policy attention. In the EU, this data is frequently used to inform place-based regional innovation strategies within the Smart Specialisation framework<sup>4</sup>.

While CIS data and related innovation scoreboards provided valid policy intelligence in a context of innovation policy 2.0 (systems of innovation), its conceptualisation of innovation and dimensions to evaluate innovation policy are set by innovation systems theory. This type of measurement faces a number of shortcomings in the context of innovation policy 3.0 targeting transformative change. The shift to societal problem solving and mission-orientation has fundamentally changed the purpose, agents and forms of innovation.

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<sup>3</sup> Gault, F. (2013) Handbook of Innovation Indicators and Measurement. Edward Elgar.

<sup>4</sup> Foray, D. et al. (2012) RIS3 Guide. Brussels: European Commission.

## **Purpose of innovation**

Traditionally, leading rationales for innovation and innovation policy have been competitiveness, productivity and growth. While these largely economically framed purposes have not been relinquished, the purpose of innovation has been extended to societal problem-solving. Growth alone is not sufficient unless it is also socially inclusive and ecologically sustainable. Broadening up the purpose of innovation and innovation policy is clearly a big ask – it highlights societal relevance but also raises questions regarding internal trade-offs and conflicts of interest between different stakeholders.

Moreover, dealing with grand societal challenges such as climate change requires systemic innovations and a fundamental transformation of socio-technical systems such as our systems of mobility, energy or food production and consumption. Programmes such as Viable Cities and Cities2030 aim at such transformative change processes in Swedish and Spanish cities, e.g. a transformation towards climate neutral cities until the year 2030 with good life for all within planetary boundaries.

## **Agents of innovation**

Traditionally, firms have been seen as the principal agents in innovation. Obviously, the importance of firms in coordinating and mobilising capabilities for innovation in market-based economies cannot be understated. Moreover, innovation policy 2.0 certainly recognizes that firms operate in an innovation system together with universities, public sector, etc. Still, the focus on societal missions goes hand-in-hand with greater recognition of the potential for innovation beyond the usual suspects. In innovation policy 3.0, there is greater expectation on the public sector as an active innovator. Likewise, it calls upon the full creativity of citizens to tackle problems as urgent as climate change and therefore emphasizes the role of citizen engagement and co-creation. As a result, we have seen a shift in considering the triple helix of industry, public sector and academia as the key actors in innovation towards the quadruple helix, including civil society and citizens.

## **Forms of innovation**

Finally, it is probably fair to say that innovation and innovation policy has had a strong fascination with technology and technological solutions. Most measurement of innovation is also geared to this kind of innovation. Over time, there is however an increased attention and appreciation for other forms of innovation, notably social innovation as it deals with new answers to social problems and seeks to improve the welfare of individuals and communities. Similarly, the notion of grassroots innovation focuses on the novelty creation and problem-solving capabilities tied to social movements and political interest groups.

## **The role of cities and their networks**

Cities have become a crucial arena for dealing with the challenges of climate change or digitalisation and the systemic innovation processes required for this. Cities contribute significantly to greenhouse gas emissions and resource consumption while at the same time being particularly exposed to many of the consequences of climate change. At the same time, they are a hub for innovation, experimentation and

change due to the proximity and density of different kinds of actors, the interwovenness of technical infrastructures and the fast pace of urban change. Cities are at the intersection of different infrastructure systems, they are centres of knowledge production and cultural diversity, but also of socio-political controversy and conflicts. Many social and political initiatives and experiments for more sustainable ways of dealing with transport, energy, food or communication are taking place in urban contexts and often serve as models also at national or international level. The programmes, partners of the UniCities - Viable Cities and citiES2030 - are therefore of key interest for processes of transformative change at different governance levels.

## Challenges of urban transitions

Embedding UniCities (alike Viable Cities and Cities2030) efforts in broader ambitions of a transition towards climate neutral, sustainable and smart cities also creates a range of new challenges for the collective governance of these changes. Four such generic challenges can be pointed out<sup>5</sup>:

(1) Directionality: There are no pre-set pathways towards a sustainable city. Instead there is a need for a continuous deliberation process about the broader direction and long-term vision of the unfolding transition. The UN Sustainable Development Goals (Agenda 2030) can serve as a background and guidance to local visioning processes. Naturally, there will be a variety of interests and different understandings of urban futures, and possible solutions will change along the way. Governing transitions to sustainable and smart cities requires fora where such discussions, conflicts and processes of sense-making can take place.

(2) Articulating needs and demand: Long-term transformative change in cities needs to actively bring in the needs and interests of a variety of actor groups, some of which are often left outside the policy process. Moreover, our needs for e.g. mobility or energy evolve over time and can be shaped by new contexts and situations. UniCities, alike Viable Cities and citiES2030 can help to create a public discussion and reflection process about changing needs in more sustainable urban environments.

(3) Policy integration: Deliberative transformative urban change needs a comprehensive perspective across administrative and policy fields such as energy, transport, food, healthcare, information and communication, social policy, welfare or economic policies. The challenge of sustainability transitions goes far beyond isolated policy fields. Embedding UniCities efforts in urban change thus also means linking them to the variety of policy sectors sketched out above and developing new kinds of policy mixes to support change.

(4) Reflexivity: There are no grand solutions or pre-set pathways towards more sustainable and smart cities, but only partial perspectives, conflicts and processes of sense-making and learning. Transformative change requires questioning world views and assumptions on underlying structures of our economy and society. UniCities activities can contribute to more reflexive approaches by

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<sup>5</sup> Weber, K.M., Rohracher, H., 2012. Legitimizing research, technology and innovation policies for transformative change: Combining insights from innovation systems and multi-level perspective in a comprehensive 'failures' framework. *Research Policy* 41, 1037-1047.

emphasizing a process perspective, striving for transparency in what they want to achieve and actively creating opportunities for critique, learning, feedback and deliberation.

## Monitoring transformative change as a collective learning process

It is in this context that efforts for monitoring urban sustainability transitions become particularly important. Monitoring strategies such as the development of indicators for urban change processes towards greater sustainability may contribute to a process of collective learning and further adaptations of instruments and policies. In this way monitoring contributes to dealing with the challenges outlined above – it is closely linked to a continuous reflection on the directions and goals of change, it helps to adapt policies and it requires sensitivity to the needs and demands of different groups of citizens. Moreover, monitoring could help to embed UniCities activities in broader strategies of urban sustainability transitions and links them to other policies and problems of urban development. It is therefore important that such monitoring not only focuses on the direct output of innovation projects but also on their wider impact and contribution to urban change. Monitoring, evaluation and learning are therefore important processes in a transformational platform as Viable Cities, Cities2030 and Unicityies.

The evaluation of long-term impacts of UniCities will certainly be part of broader quality assurance efforts. Luederitz and colleagues<sup>6</sup> have developed ideas about what is important in evaluating transition initiatives. In general, evaluation schemes should be

- generic (applicable to various types of projects)
- comprehensive (cover a broad range of outcomes)
- operational (applicable to particular cases)
- formative (support projects in becoming more effective)

Moreover, there are four evaluative dimensions which should be addressed:

- What was generated? (direct project outputs)
- What was accomplished? (outcomes, broader impact of the project)
- How was it completed? (which processes, strategies, methods were applied?)
- What was invested? (project input).

The output of transition-oriented projects does not only comprise new knowledge, products or solutions, but may rather be oriented towards more intangible outputs such as capacity building (e.g. new skills, competence for building alliances), accountability (creating commitment), achieving structural changes (whether of physical infrastructure or social institutions) or creating ‘actionable’ knowledge which results in new practices and activities.

Monitoring transformative change in UniCities has the ambition to go beyond direct outputs and outcomes, as exemplified above, but it will have a broad perspective on urban change in cities and actors to be involved. This shifts the focus also to the combination of collaboration within cities and

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<sup>6</sup> Luederitz, C. et al., 2017. Learning through evaluation – A tentative evaluative scheme for sustainability transition experiments. *Journal of Cleaner Production* 169, 61-76.

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across cities. Learning from the results of UniCities should thus be combined with a heightened attention to questions such as: Are they part of broader portfolios of efforts and experiments and how does this increase their impact on urban change? Can we find learning effects across cities? Which accompanying policies are required to increase the impact of these projects?

Monitoring for transformative change will assume a need in development of novel monitoring strategies in collaboration with Viable Cities and Cities2030. This paper is a first step towards better monitoring strategies which go beyond the evaluation of the direct outcomes and outputs of the project. The next steps will be to lead further discussions on how to operationalise the formative internal monitoring of UniCities to uncover transformative potential of the efforts.