Annex X. PROPOSITION OF SUPPORT TOOLS

EVALUATION OF IMPLEMENTATION OF THE SMART CITY CONCEPT IN THE VISEGRAD GROUP COUNTRIES

Contracting Authority:
MINISTRY OF DEVELOPMENT FUNDS AND REGIONAL POLICY

Contractor:
Wolański Sp. z o. o
EGO-Evaluation for Government Organizations s.c.

The project is co-financed by the Operational Program Technical Assistance 2014-2020

TABLE OF CONTENTS

URBAN LAB NETWORK

Key challenges addressed by the recommendation:

- How to actively involve stakeholders into the process of creating, testing and implementing technological projects in accordance with the Smart City 3.0 idea?
- How to support local governments in professional preparation and implementation of technological projects?
- How to develop competences in local governments in the field of designing digital services / products for residents?

Proposed source of financing:

- European Funds 2021+
- Co-financing of projects from local government funds and funds of external partners (e.g. enterprises - PPP - Public-Private Partnership).

How should it work:

- Organization of a cooperating network of Urban Labs in the formula of active entities in or outside the organizational structure of medium or large cities.
- It is worth considering a special mechanism / path for creating Urban Labs tailored to needs of small and medium-sized cities. This is particularly due to the shortage of adequate resources in these cities. City partnerships may be considered.
- The Urban Lab team should consist of both representatives of the local office and external experts.
- Lab resources:
    - a team of permanent employees:
        - leader (anchored in the city structures);
        - UX designer, service designer;
        - qualitative researcher, ethnographer;
        - Big Data analyst;
        - animator, networking specialist;

- it is worth ensuring that officials and experts cooperating with the lab do not leave the market,
- a team of external experts employed ad hoc to projects: sector and technology experts,
- virtual and physical workspace,
- financial resources for co-financing the preparation of urban projects (75% Lab, 25% city) ,
- additional funds for financing the implementation of projects may come from the micro-grant budget (recommendation 10) or from another dedicated programme,
- part of the funds for the implementation of projects may be provided by cities.

- The scope of lab services provided to cities:

  - Lab plays a service role for the internal city units;
  - research on the needs of residents and stakeholders based on qualitative and quantitative research and Big Data analyses;
  - identification of innovative solutions responding to the needs of cities through cooperation with research units, enterprises, start-ups, collectives of specialists / enthusiasts (hackathons). The solutions may be (but not necessarily) technological, they may also be simple solutions that improve the city's functioning;
  - design and improvement of services and experiences of residents (inclusive process involving stakeholders: residents);
  - conducting tests and experiments for existing and planned solutions;
  - building an innovative culture in the office (internal internships, improving project competences, mentoring, active participation in projects by officials from other organizational units of the city, educational activities, diagnosis of the potential of local governments);
  - measuring and presenting the results, which will help to build trust and social acceptance.

Example / inspiration:

- Urban Lab in Gdynia, Urban Lab Rzeszów
- Copenhagen solution Lab
- The Lab@DC

Expected results:

- Improving the planning and implementation process of Smart City projects that respond to the actual needs of users and city authorities, thanks to:
  - practices of involving residents at the stage of defining, testing and implementing technological projects;
  - increasing the competence and experience of office staff to independently prepare digital projects;
  - increasing the level of empathy of officials to the needs and expectations of residents;
  - increasing the openness of officials to change, innovative solutions;
  - supporting decision-making processes with data on the needs, expectations and behaviour of residents and stakeholders in the city.

CONSTRUCTION OF THE SMART CITY CONCEPT IN CITIES – PILOT PROJECT

Key challenges addressed by the recommendation:

- How to actively involve numerous stakeholders in the process of planning and designing solutions in accordance with Smart City 3.0 (Human Smart City)?
- What are the needs of residents and stakeholders and what should be the key directions of activities in the development of Smart City?
- How to create Smart City technology ecosystems in cities?
- How to prepare a strategy that will constitute an operational document guiding the implementation of Smart City?
- How can we ensure better vertical coordination of digitization activities by different city units and services?
- How to ensure a uniform approach to the Smart City concept in various cities (and their subordinate units) throughout the country and a uniform system of monitoring indicators for this concept? What should the prioritization of indicators look like?
- How to connect building the Smart City concept in the context of key challenges for the future of cities, i.e. climate change, social cohesion?

Proposed source of financing:

- European Funds 2021+

How should it work:

- Announcement of the pilot project among local governments - preparation of strategic documents "Smart City Concepts in Cities".
- Selection of an interdisciplinary team of advisers (Contractors) to provide a comprehensive support service for the preparation of the Smart City concept in cities, including the development of a uniform

The project is co-financed by the Operational Program Technical Assistance 2014-2020

definition of Smart City[1], development of the framework and guidelines for the development of strategic documents.

- Stage I - preparation by the Contractor of the Methodology of works to be carried out - a proposal of general and dedicated support packages, including the development of universal tools for independent use by cities that do not participate in the pilot project.
- Stage II - diagnosis and inventory of the situation with individual recipients, including examination of digital maturity, setting directions for changes as well as preparation and agreement of a general and dedicated support package.
- Stage III - consulting for individual recipients as part of dedicated support packages and for all pilot project participants as part of the overall support package.
- Exemplary scope of services provided to cities as part of the general support package (to be developed by the Contractor):
    - thematic webinars / seminars, e.g. how to involve residents in the preparation of the Smart City concept? How to build the Smart City ecosystem in cities? How to create interdisciplinary teams responsible for Smart City projects and how cities should manage knowledge in this area?
    - pilot project web page;
    - general description of the subject of the contract for the Smart City concept;
    - development of a model architecture of basic Smart City systems in the city along with the specification of interfaces.
- Exemplary scope of services provided to cities as part of the dedicated support package (to be developed by the Contractor):
    - carrying out workshops with stakeholders (including residents) clarifying the scope of the concept;
    - preparation of the Terms of Reference for the Smart City concept and assistance in conducting the tender procedure;

[1] A uniform definition should allow for a uniform understanding of Smart City projects in local governments.

        - ad hoc assistance during the preparation of the concept and its acceptance.
    - Additional funds for monitoring the implementation of the Smart City concept.
    - It is worth considering appointing Smart City coordinators in cities responsible for the implementation of the Smart City concept in cities.

Example / inspiration:

- Support Project for the Preparation of Sustainable Urban Mobility Plans (2020-2021)
- Human Smart City pilot project addressed to 24 cities of various sizes (2020-2023)

Expected results:

- Development by local governments of the Smart City concept in a standardized form for all local governments:
    - meeting specific requirements;
    - involving residents and stakeholders already at the stage of recognizing needs and creating directions of activities;
    - assuming the construction of Smart City ecosystems;
    - including priority and other actions.
- Increasing the competence and experience of office staff in the preparation of digital projects, increasing the openness of officials to change, innovative solutions.
- Supporting decision-making processes with data on the needs, expectations and behaviour of residents of the city.

SMART CITY CONTACT POINT

Key challenges addressed by the recommendation:

- How to support local governments in professional carrying out and evaluation of technological projects?
- How to provide local governments with access to independent technology experts?
- How to help local governments find the right source of financing for the project, adequate to the scope of the project and to the expected level of risk?
- How to be inspired by good practices from other cities and countries, taking into account the potential and specificity of the city?
- How to build a public knowledge base on Smart City, managed by a designated institution in a way that ensures consolidation of information about projects and business continuity?

Proposed source of financing:

- European Funds 2021+

How should it work:

- Creating a contact point for Smart City initiatives operating on a national scale, alternatively such points could function as part of urban labs at the local level.
- The scope of support of the contact point:
    - website of the contact point, containing basic information about strategic documents and available sources of financing;
    - a database of good practices in the Smart City area, along with information on the basic conditions for the transferability of a given solution to another city;
    - organization of information days on the scope of support of the point;
    - organization of individual consultations and public workshops on Smart City;

The project is co-financed by the Operational Program Technical Assistance 2014-2020

- possibility of using the advice of technological experts in accordance with the "Innovation Coach" formula:
    - estimating the needs and potential of the city to implement innovative solutions;
    - selection of a sector expert (scientist or practitioner in the Smart City area, with knowledge about current trends and news in the sector and city problems);
    - the role of specialists could also be played by local government officials experienced in the implementation of Smart City projects, sharing their practical experiences with other officials;
    - package of time of individual consulting support from sector and technology experts;
    - joint development of directions and paths for implementation of the solution in the city and analysis of the possibility of obtaining funds for this purpose (private, public, EU funds);
    - It is worth considering that the point should be a virtual portal that follows trends and changes, systematically supplemented with knowledge, with an additional functioning of organising thematic educational events and advisory activities addressed to local government officials.

- Organization of work:
    - including the contact point in the structures of another, existing institution (e.g. Centrum Projektów Polska Cyfrowa / Digital Poland Project Centre).

Example / inspiration:

- Innovation Coach programme, https://www.innovationcoach.pl/
- Czech Republic, portal promoting a uniform Smart City concept, database of projects and information on funding sources, https://mmr.cz/cs/microsites/sc/smart-cities
- Slovakia, database of projects and information on funding sources, https://www.smartcity.gov.sk/
- MRPiT portal "Platforma Przemysłu Przyszłość" (Future Industry Platform) as an inspiration on the possible structure and content of the portal.

Expected results:

- Implementation of solutions in the Smart City area tailored to the needs of cities, without high expenditure on looking for solutions.
- Increasing the competence and experience of office staff to independently prepare digital projects in Smart City area.
- Supporting decision-making processes with data on the needs, expectations and behavior of residents and stakeholders in the city.

DEVELOPMENT OF UNIVERSAL SMART CITY SOLUTIONS

Key challenges addressed by the recommendation:

- How to implement Smart City projects in a flexible formula in smaller cities?
- How to create competences of Polish suppliers of Smart City solutions and combine them with public procurement?

Proposed source of financing:

- FENG 2021+ / FEnIKS

How should it work:

- Organization of a contest for entrepreneurs to develop Smart City solutions, to be adjusted to the level of co-financing of cities - e.g. public transport travel assistant.
- It is worth ensuring that the solutions are flexible enough so that each city can adjust them to its individual needs.
- It is worth paying attention to the levels of scalability of technological solutions corresponding to different sizes of cities. Ideally, proposed solution allows for various implementation variants and allows for their adjustment to individual needs (customization).
- The choice of the topic or topics of implementation universal for many cities, e.g., in the field of public transport. Examples of initiatives include projects such as: comprehensive MaaS assistant - public transport, city bike, car-sharing, along with optimization of tariffs, mitigation of disturbances, AR orientation at transfer nodes.
- Selection of potential implementation contractors by the NCBR (The National Centre for Research and Development).
- Production of PoC (Proof of Concept) and selection of the best solutions.
- Test implementations of several solutions in several cities and selection of the best ones.
- Mass implementation with co-financing from an appropriate source (e.g. FEnIKS, city budgets, etc.[2]).

[2] In case of smaller cities, the budget could be proportionally smaller.

- When designing solutions, it is worth relying on the experience of the e-Pionier Programme implemented by the NCBR.

Organization of work:

- NCBR / CUPT

Example / inspiration:

- project of purchasing NCBR electric buses (not implemented as the electric bus was not an innovation)
- ERA-NET Cofund Urban Transformation Capacities (or JPI Urban Europe in general, https://jpi-urbaneurope.eu/calls/enutc/)

Expected results:

- Creating domestic, mature and exportable Smart City solutions.
- Implementation of tested, serial Smart City solutions for smaller cities.

INVESTMENT FUND FOR SMART CITY STARTUPS

Key challenges addressed by the recommendation:

- How to create innovative Smart City solutions in Poland, and not to buy global solutions?

Proposed source of financing:

- FENG 2021+

How should it work:

- An investment fund similar to the National Capital Fund - includes shares or acquires investment certificates of private VC funds that manage investment recruitment in a market-based manner and provide a market-based approach to investment selection.
- Investments concern start-ups implementing Smart City solutions.
- The scope of support complementary to the scope of investments - priority for startups whose products implement specific public policies, e.g. climate or social ones. Startups operating locally, especially in small and medium-sized cities, are promoted.
- In case of success, the private partner may buy the share of the public partner taking into account the increase in the value of the company.

Organization of work:

- BGK

Example / inspiration:

- National Capital Fund
- Bridge Alfa NCBR

Expected results:

- Creating domestic, mature and "exportable" Smart City solutions.
- Maintaining the capital share in the created champions.
- Return on investment for the public investor (as opposed to a grant).

STEP (WE'LL CHECK YOUR EXPERIMENTAL IDEA) FOR SMART CITY

Key challenges addressed by the recommendation:

- Supporting local governments in analysing the potential of their ideas for transformation towards Smart City.
- Supporting local governments in choosing the most appropriate financing source for a given type of project.
- Exchange of good practices and knowledge in the area of Smart City, education of local governments (decision makers) less familiar with the idea of Smart City.

Proposed source of financing:

- European Funds 2021+

How should it work:

- Support for local governments (a wide catalogue of entities conducting pro-innovation activities in urban ecosystems) interested in implementing projects in the Smart City area through professional (expert) analysis of ideas for projects / directions of transformation.
- Support for a wide catalogue of entities conducting pro-innovation activities in urban ecosystems in applying for funds available for the implementation of their ideas and improving the quality of submitted applications.
- An open and free instrument, optionally, STEP activities may be included in the Urban Lab's responsibilities.
- Scope of support under the measure:
    - under the above-mentioned instrument, interested local governments will have the opportunity to verify the potential of their ideas for projects in the Smart City area - primarily in terms of their innovation, adequacy and potential for funding;
    - after the project idea is submitted and after its initial verification, a sector expert will be assigned, who in detail and with the participation of the applicant (a specific package of hours for joint meetings) analyses its potential and analyses the idea in terms of

strengths and weaknesses in the context of criteria in the available programmes / sources of funding;

- the local government will receive an assessment of the idea and a source recommendation to apply for funding
- possible implementation of support in two (or more) paths depending on the advancement level of the idea and the Applicant concerned:
    1. Path I for local governments with a low level of knowledge of the Smart City concept and available financing sources;
    2. Path II addressed to local governments with experience in implementing Smart City projects, but requiring more detailed (sectoral) support in the analysis of their ideas and development potential.

Example / inspiration:

- STEP programme for companies (POIR) https://www.funduszeeuropejskie.gov.pl/strony/wiadomosci/zostan-w-domu-a-my-sprawdzimy-twoj-eksperymentalny-pomysl-na-projekt-step/

Expected results:

- Implementation of projects in the Smart City area by a new group of local governments that have not yet implemented similar solutions.
- Increasing the competence and experience of local governments in generating and evaluating ideas for digital projects / projects in the Smart City area.
- Improving the quality of submitted applications for co-financing for the implementation of projects in the Smart City area.
- Exchange of knowledge and good practices in the Smart City area.

ADDITIONAL POINTS IN THE NCBR / PARP COMPETITIONS FOR THE PLANNED "SMART SOLUTION" APPLICATION IN CITIES

Key challenges addressed by the recommendation:

- How to increase the scale of implementations of intelligent solutions in Polish cities?
- How to encourage cities and local technology providers to more active R&D cooperation in the field of smart city solutions?
- How to make smart solutions for cities more innovative?

Source of financing proposal:

- FENG 2021+

How should it work:

- Adding scoring criteria in NCBR / PARP competitions for the planned "smart solution" application in cities, so that the projects could have a greater cumulative impact on the implementation of the smart city concept, but the challenge is to develop criteria that will allow you to reliably select the right projects.
- KIS 2021+ taking into account Smart City aspects (e.g. in the area of urban applications for key technologies, the so-called core technologies).
- Criteria for evaluating applications for co-financing in the cohesion policy implementation system, including FENG and ROP.
- An alternative solution may be contests dedicated to projects with the anticipated "smart solution" application.

Example / inspiration:

- KIS in POIR 2014-2020

Expected results:

- Ability to have an indirect but significant impact on the overall improvement of the performance of digital public services in a soft manner (quality, interoperability, sustainability).

- Ability of exerting an indirect influence on the dissemination of the model of good key cooperation in the Smart City project: pilot projects, testing, participatory cooperation, etc.

- Cohesion policy plays a significant role in shaping the management culture in the public sector and through it it is possible to disseminate good practices in this area.

- Supporting local technology suppliers cooperating with Polish cities in order to develop local tailor-made solutions of a more innovative nature.

GOV-TECH (GOV-LAB)

Key challenges addressed by the recommendation:

- The needs and expectations of stakeholders and project users are not always well known in local governments.
- The need to deepen and develop digital competences among officials.
- The need for practical knowledge, the possibility of "experimental" testing of acquired knowledge in real conditions, low level of use of technical dialogue in ordering new technologies in local governments.
- The need to build competences in the area of proper supervision over the implementation of a digital project.

Key challenges addressed by the recommendation:

- How to support local governments in professional preparation and implementation of technological projects?
- How to embed good practices in managing a technology project in administration?

Proposed source of financing:

- Inno-Lab system project in FENG 2021+

How should it work:

Introduction

- Announcement of the competition / procurement for the selection of the program operator by the Agency.
- Stage 1: The operator / agency recruits interested local governments on the basis of technological project proposals.
- Stage 2: Development of technology project management standards, including a description of good practices of use: agile methodology, research and UX tests, connecting the supplier's teams with ordering parties, e.g . e-Health Centre (former CSIOZ).
- Stage 3: Educational component on the preparation of technological projects, management methodology and technology.
- Stage 4: Diagnosis and definition of the project assumptions (technological, social and organizational).
- Stage 5: Preparation of PoC (Proof of Concept), initial tests (optional) with technology, thematic and UX experts.

- Project details could be disseminated between cities, it is also worth considering an open API or license fees for using a given solution in some projects.

Path I (the local government has the resources)

- Stage 4: Clarifying the scope, consultations with potential suppliers, consultations with technology experts with the support of the operator's technology experts.
- Stage 5: Technical dialogue, tender and selection of supplier with the support of the operator's technological experts.
- Stage 6: Implementation (tests with users, corrections, implementation) with the support of the operator's technological experts. Individual implementation path, dedicated to a given city.

Path II (local government is applying for funds from a dedicated contest)

- PoC assessment by independent experts and design recommendation.
- Submission of PoC after tests for a dedicated "smart cities" contest in which you can obtain funds for project financing (a mechanism similar to that in the start-up platforms in Eastern Poland).
- Project implementation - as in Path I.
- Additional suggestions:
  - an important motivator for the participation of local governments in the program is the combination of "gov-tech" advisory assistance with financial resources for the implementation of projects, e.g. from the National Reconstruction Plan;
  - it is worth developing the mechanism of the program in such a way that it causes proactive involvement of officials in the process of creating and implementing technological projects;
  - as part of implementations, it is worth considering technology companies of various sizes.

Examples / inspirations:

- gov-lab Project - educational program for local government units - https://www.parp.gov.pl/component/grants/grants/gov-lab-program-edukacyjny-dla-jednostek-samorzadu-terytorialnego.
- Pilot project of the gov-tech programme - preparation and procurement of new technologies https://www.parp.gov.pl/component/grants/grants/govtech-inno-lab.

Expected results:

- Testing good practice in managing a technological project in local government and implementing a new path in managing a technological project.

- Increasing the competences of officials.

SMART CITY ACADEMY

Barrier to which the recommendation responds:

- There is a need for highly specialized knowledge on the implementation of technological projects in the local government environment.
- The need to deepen and develop digital competences among officials.
- A distributed educational offer on the market in the field of digitization, mainly aimed at entrepreneurs.

Key challenge addressed by the recommendation:

- How to increase the competences of local governments in the professional preparation and implementation of technological projects?

Source of financing:

- EU Funds 2021+

How should it work:

- Announcement of a tender to select the organizer of the Smart City Academy among schools with an interdisciplinary profile (technical, business and urban competences).
- An alternative is to announce a contest for the concept of postgraduate studies, where universities could compete with ideas for a postgraduate program, it is also worth considering admitting university consortia.
- Recruitment of city representatives responsible for smart cities and other substantive units, it is worth maintaining parity between participants from large, medium and small cities, moreover, two-person delegations can be allowed.
- Organization of postgraduate studies, with a practical component of preparing own Smart City projects responding to the real needs of the city.
- Participation of foreign experts, especially representatives of cities from the top of smart city rankings (e.g. Helsinki, Zurich, Singapore)[3], as well as study visits for participants.
- Lecturers: UX designers, technology experts (Ai, Cloud, Blockchain, IoT), developers, Project Managers, Strategists, representatives of local governments.

[3] https://www.imd.org/smart-city-observatory/smart-city-index/

- The main goal of educational activities should be to prepare officials to commission and coordinate technological projects, for those interested in further development, a "for advanced" path should also be launched, enabling deepening knowledge about designing digital solutions and selected technologies.
- Additionally, the curriculum should include a shortened path for less technical, more strategic decision-makers.
- An alternative solution may be a series of training courses and networking events that will guarantee officials to raise their competences and knowledge in a systematic manner.
- Educational activities should be integrated with networking activities, which will enable building a community of officials dealing with the subject of Smart City.
- Optionally, it is worth considering combining the Academy with the Gov-tech programme, thanks to which graduates would have the opportunity to use the acquired knowledge in practical activities.

Example:

- Evaluation Academy (Ministry of Development Funds and Regional Policy)
- Academy of Regional Development (Ministry of Development Funds and Regional Policy)
- Analytics Academy (Chancellery of the Prime Minister)
- Innovation Manager Academy
- Academy of the Cities of the Future (Polish Development Fund)

Expected results:

- Increasing the competences of officials.
- Networking, exchange of experiences between officials.

MICRO-GRANTS FUND

Barrier to which the recommendation responds:

- The needs and expectations of stakeholders and project users are not always well known in local governments, so technological projects do not always meet the expectations of users.
- The approach of involving all project resources in the "implementation" dominates, while finances for the identification of user needs, PoC (Proof of Concept) and tests are being limited.
- The need to experiment with more innovative and risky solutions.

Key challenge addressed by the recommendation:

- How to increase the probability of success of Smart City projects in local governments?
- How to enable a wide catalogue of entities operating within urban ecosystems to co-create smart solutions?

Proposed source of financing:

- European Funds 2021+
- Technology provider resources

How should it work:

- Micro-grant Fund (up to PLN 200,000), from which local governments could obtain additional funds to support the implementation of technological projects in three areas:
    - user needs research;
    - preparation of PoC and UX tests;
    - pilot projects in the form of experiments.
- The programme should encourage potential beneficiaries to submit well-thought-out system projects in which tests and PoC are the next steps in achieving ambitious goals, avoid random, incidental projects, devoid of long-term assumptions.
- Grants should be distributed quickly, with less than 60 days for the funding decision.
- It is worth introducing a system of indicators that would facilitate the evaluation of the programme's effectiveness.

- The micro-grant program may be one of the sources of financing for the developed Smart City concept in cities (recommendation 2).
- It is also worth considering supplementing the financing of pilot projects with private funds from "technology providers" who want to test new solutions in urban space (example of CitiLab in Wrocław).
- It is worth considering the requirement to provide an implementation manual from a co-financed project / test / pilot project so that an example of this solution can instruct other interested local governments and build knowledge resources to be used in other processes.

Example / inspiration:

- Wrocław CitiLab project: https://www.wroclaw.pl/smartcity/projekt-wroclaw-citylab (in terms of tests)

Expected results:

- Smart City projects better suited to the needs of stakeholders and users.
- Increasing the probability of success of Smart City projects.