Prototyping the Smart Urban Future by implementation of Smart City Monitor (SCM) pilots in local communities

Project content overview

by GOLEM IMS GMBH & ASIDEES, Austria

Project objectives

- Enabling Digital Economy and Digital Agenda locally
- Transparency of urban infrastructure processes
- Smart governance, effective operations, citizens feedback
- Access to finance for practical Smart City project
- New services for citizens and their engagement
- New services for tourists and visitors, public visibility
- Improved use of available urban resources and resilience
- Sustainability assessment and management
- Fostering investment attractiveness and capacity for growth and improved quality of life

Implementation approach

- Piloting strategic integrated urban technology innovation contributing to growth, digital agenda, and economy, sustainability, employment and social cohesion
- Transfer of enabling innovation technology and knowledge to local community
- Setting effective and reliable support of urban communities in advancing of civic services
- Continuous evaluation of results and feedback
- International recognition of the community achievements and improved investment attraction

Project teams

SCM Technology providers, Austria

- Serguei Golovanov, PhD, DI, Principal, GOLEM IMS GMBH, Vienna, Austria
- Elena Petrova, MSc, Project Coordinator, ASIDEES (NGO), Austria
- Project support teams by GOLEM IMS GMBH and ASIDEES

Smart Urban Community

- Project Manager _____
- Smart City Team (SC Team)
- Local business partners by the community administration

SCM Team in Austria

- Transfers the SCM knowledge and the technology applications to local SC Team in the Municipality
- Guides and supports the OpenUM development, its linking to open data sources, testing and running
- Provides consulting and training, technical expertise
- Updates and improves the SCM functionalities, services and applications used by local community by SCTeam requests
- Develop additional functions, APIs enabling new applications for digital economy, management, citizens and tourists
- Supports local providers and businesses in integration of their mobile applications to the SCM servers
- Certifies the Municipality by ISO 37120 upon the effective implementation ISO 37120 model in the project

Local Community / Municipality

- Sets own multidisciplinary Smart City Team (SCTeam)
- Links SC Team to representatives of different city stakeholder groups and organizations enabling their participation, contributions, access to open data, studies, evaluations and recommendations
- Formulates own policies and decides on SCM services for the stakeholders, its commercialization and compliance to national and EU legislation
- Actively implements the SCM technology enabling digital transformation and its applications based on local connectivity accordingly to the plan
- Decides on opening the SCM prototype services for public use
- Evaluates Project implementation results based on stakeholders feedback
- Informs SCM team regarding new digital services, functions, improvements
- Manage the implementation of digital economy applications, removes silos in urban management and promote access to necessary open data sources
- Advances own Open Urban Area Model (OpenUM), owns its copyright ®
- Administer on own Smart City Monitor instance (in cloud or at premices)

The Project Stages

Stage 0: Preparatory and planning

Stage 1: Capacity building, technology transfer

Stage 2: Implementing sample Open Urban Model, its learning

Stage 3: Planning OpenUM v.1 upgrade enabling local content

Stage 4: Implementing experimental OpenUM v.1 and initial basic set of digital transformation services

Stage 5: Planning advanced digital services based on results of OpenUM v.1 implementation and upgrade of the model

Stage 6: Implementing advanced digital services based on OpenUM v.2 enabling new digital ecosystem for stakeholders, public case studies, project results assessment

Total project duration: up to 12 months

NB: The project can be supported by the supplementary activities by local providers

Open Urban Models in the Project

- **OpenUM 37120** is initial computer urban model having its sample open data set for a middle size city which is implemented by international standard ISO 37120 "Sustainable development of communities—Indicators for city services and quality of life"
- **OpenUM v.0** is the OpenUM 37120 model running the local open data set prepared by the local SM Team implementing the project
- **OpenUM v.1** is the experimental model prototype having the city infrastructure linked to its necessary open data sources
- **OpenUM v.2** is final model upgraded from v.1 enabling digital transformation services for the community accordingly to its Digital agenda, Economy and Business models formulated during the project implementation

Stages 0 Content

- Preparing the Project Master Plan
- General Agreements on the implementation and financing by parties
- Forming Smart City Team by the municipality
- The SC Team Charter document signed by the parties involved
- Acceptance of the documents is achieved

Stage 1: Capacity building

- Kick off meeting of both parties
- Training of the Smart City Team
- Study of the ISO 37120 and other latest standards for management of urban communities
- Analysis of Urban Model structure by ISO 37120 and its implementation on Smart City Monitor
- Review of digital services for stakeholder groups
- Discussion
- Review of the next development stage content

Stage 1 Implementation

- Installation of the SCM sample local urban model running by international standard ISO 37120
- Study of necessary open data sources
- Analyzing the optional data properties
- Linking the model to source data streams
- Testing the experimental model by the SC Team
- Analysis of initial set of default digital services
- Evaluation of the results and formulation of necessary corrective actions

Stage 2: Implementing Open Urban Model (OpenUM v.0) by ISO 37120

- Planning the open data sources access in local community
- Analysing the standard indicators by ISO 37120, etc
- Study, formulation of local customized indicators by municipality
- Planning customized OpenUM v.0 structure for the municipality
- Planning implementation of data sources for the OpenUM v.0
- ISO Model customization and upgrading into local OpenUM v.0
- Preparing the local open data sources and its connectivity
- Linking the OpenUM v.0 to the data sources and testing
- Evaluation of the digital services enabled by OpenUM v.0
- Evaluating of the stage results, experiences, discussion

Stage 3 Planning the upgrade of OpenUM enabling local content

- Formulating digital services for main stakeholder groups
- Analysing and planning the necessary OpenUM v.1 structure and its smart objects to enable the services
- Formulating the local smart object categories and focus views for the stakeholders using the services
- Expanding the set of custom indicators in the urban model structure and its objects for the custom services
- Defining planned targets and smart object statuses
- Making the implementation plan and resource use

Stage 4 Implementing OpenUM v.1 for the local community

- Study of connectivity for linking to data sources
- Making necessary data sources available and linkable
- Linking OpenUM v.1 to data sources (IoT, sensors, databases)
- Testing data streams from Smart Objects (SCADAs, ERPs, mobiles)
- Implementation of default basic digital services
- Testing OpenUM v.1 and services by the SC Team
- Testing the digital services in stakeholder groups (administration, utility providers, citizens, local businesses)
- Evaluating the results and formulation of improvements
- Implementation of the improvements, upgrading

Stage 5 Planning advanced digital services based on OpenUM v.1

- Study of use cases and experiences of previous stages
- Up to date study of latest business models and digital economy developments, its applicability to local community
- Selecting, formulating the target business models, strategic vision of digital economy ecosystem for local community
- Formulating the relevant use cases and scenarios
- Preparing the List of Advanced Digital Information Services (ADIS) based on use cases for each stakeholder group
- Preparing requirements for customized mobile apps, interactive reports and dashboards for each stakeholder group including administration, utility providers, local businesses, citizens, tourists

Stage 6 Implementation of digital services for new digital ecosystem

- Upgrading the OpenUM from v. 1 to v. 2 (structure, indicators, data sources, user groups, access, security and protection, etc)
- Enabling API for mobile apps for the third parties
- Adding customized reports, dashboards, mobile apps for each stakeholder group
- Implementation of Advanced Digital Information Services (ADIS)
- Testing ADIS in each stakeholder group
- Evaluating the results and formulation of improvements
- Upgrading, fixing, improving
- Project report, ADIS release, PR events, international studies
- Running urban digital platform enabling ADIS, its monitoring, evaluation of statistics, usage patterns, optional improvements

Initial hardware requirements

- Cloud server or in house server
- Minimum configuration:
  - Quad core, 32 GB ECC RAM, 2 * 250 GB SSD or SATA, backup 100 GB
  - Internet connection port
- SCM Model builders: Notebooks/PCs running MS Windows 7/8/10 or Ubuntu Desktop
- SCM web clients run on any devices having browsers Chrome, Safari, Opera, Firefox, IE Edge under Android, IOS (iPhone/iPad), Linux, MS Windows or Chrome OS

The platform scalability allows its migration to upgraded hardware upon to accommodate heavier loads

Project costs include

- Consulting and support by local experts
- Implementation of sensor and IoT networks, infrastructural developments, open data sources, its integration and connectivity
- Workshops and experiments in stakeholder groups
- Third party contributions to the project results
- Publicizing and PR, optional international events
- Monitoring, analytics and benchmarking of citizens feedback to address the interests, provide responses
- The licenses for Smart City Monitor platforms in districts, Urban Model builders, Web clients, Smart City model by ISO 37120:2014
- Travel and accomodation

Financing Smart City projects

The main options of Smart City project financing are:

1. Local community budgets
2. Structural funds and other financial sources

In addition the option 2 allows small, medium and even large size communities opportunity for

- Integration of several small infrastructure projects into one large Smart Urban Community Project
- Its application for the Structural Funds and banks having relevant attention.

JASPERS by the European Investment Bank provides assistance in preparing of such project applications for financing to be compatible with requirements by relevant banks EIB, EBRD, etc.

Further details by link https://smartcity.win2biz.com/demo/content/en/675

Contacts for project inquiries

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