STATE ATOMIC ENERGY CORPORATION “ROSATOM”

Rusatom
Smart Utilities

LEAN SMART CITY

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MAIN CHALLENGES FOR THE SUSTAINABLE CITY DEVELOPMENT

WORLD TRENDS

Demographic problems

Population aging and reduction

Income gaps

Increase in the income gap of employees of commercial enterprises and employees of the budgetary sphere and pensioners

Budget burden

Municipal budgets burden increases

Management transparency

Growing need for transparent and effective management

Health care system

Decrease in quality and availability of medical care

Personnel problems

Reduction of workplaces and entrepreneurial activity

Aging Infrastructure

Inconsistency of the utility complex and facilities with modern requirements

Investment climate

Need for development and support of small and medium-sized businesses

Digitalization of cities

1. Transformation challenges into potential growth
2. Up-to-date approaches in urban development management
3. Meeting the needs and involvement of all parties
4. Efficient integration of urban infrastructure elements
5. Social package development and implementation to retain the population
6. Big data accumulation, monitoring and analytics

ROSATOM IN THE DIGITAL MARKET

ROSATOM

>300 Industry enterprises

814 billion rubles new business

36 NPP units in Russia and abroad

27 "Rosatom" cities > 2,1 million people

- Understanding the needs of residents
- Creating conditions for youth development
- Qualitative change in infrastructure
- Supercomputers and software
- Security systems
- Industrial control systems and devices
- Nuclear medicine
- Clean potable water
- Ecology and etc.
- Industrial and scientific base
- Domestic products and development
- Integrated offer
- Data centers

ROSATOM'S VISION OF SMART CITY DEVELOPMENT – A TERRITORY OF SUSTAINABLE GROWTH WITH A HIGH HUMAN CAPITAL INDEX

UN-HABITAT

Rosatom's "Smart city" project is one of the best practices recommended by UN-HABITAT

ISO

Rosatom was invited by ISO leaders to jointly develop a standard for the sustainable development of small and medium-sized cities

Rosatom's "Smart city" project contributes to SDG goal №11 "Sustainable cities and communities"

Rosatom's "Smart city" project contributes to the list of Russian National and Federal programmes

https://smartsarov.ru

Purpose

The ability to digitalize city services and processes for solving multiple problems of urban development, creating a comfortable, safe and lean environment. As a result, improving management efficiency and quality of life.

Users

- Citizens
- Business
- Administration

30 Operating modules

+24 modules since 2018

Advantages

- Pilot project in various cities in Russia
- Versatility and flexibility of the Platform

ROSATOM PRODUCTION SYSTEM

KEY EVENTS AND PROJECT MILESTONES

Rosatom Production System (RPS) is a culture of lean production and a system of continuous improvement of processes that are used to ensure competitive preferences on global markets.

10 years of RPS

>4000 projects

>57% reduced production time of key products

Accumulated experience

Unique knowledge

Professional community of experts

New vector of development of the ROSATOM Production System - social sphere of the Russian Federation

Lean government

More than 170 project in 8 regions of Russia

Lean clinic

Lean city

Lean education

LEAN SMART CITY

METHODOLOGY

Powers of city government

- Powers of a city government determined by the Federal law
- Federal powers delegated to a city
- Additional powers related to peculiarities of a territory
- Organizational structure of a city, its subordinate and contracting organizations

LEAN

Processes

- Process participants (performers, customers, internal / external parties)
- Key processes / services carried out within the powers of city government
- Efficiency metrics and development of the target state of the process
- The list of problem areas in the processes
- Prioritization
- List of optimization projects (Rosatom production system)

SMART

Digitalisation

- **Data**, necessary to exercise powers and obtained during the processes
- **Platform features** required to achieve the target state of the process (platform architecture, cross-functional interaction, analytics, predictive tools)
- **Digital services** for various users, necessary for the implementation of the process and the effective exercise of powers

Metrics

- Compliance with the City / Region Development Strategy
- Compliance with principles of a smart city concept
- Compliance with a National project “Digital economy of the Russian Federation”
- Correlation with areas that cause social tension
- Lead time (days/hours)
- Quality indicators (formalized feedback, reduction in the number of complaints)
- Budget savings
- Additional income in the city budget
- Process Efficiency Ratio
- Data usage frequency
- Viability of digitalization

METHODOLOGY IMPLEMENTATION PLAN

Phase	Action Items	Tools
Responsibilities Analysis	Training on the Lean Smart City methodology Analysis of the practice of execution of the priority list of powers within the Federal Law Development of the functional structure of all participants of the Lean Smart City project	• Lean Smart City training • List of powers according to the Federal law • Questionnaire to determine the key powers of the city • Description of the organizational structure of the city and subordinate organizations
Process Diagnostics	Rosatom Production System training Conducting an interview and compiling a list of the main municipal processes and services within the powers of a city government Identifying key stakeholders of the processes Determination of metrics to assess process performance and target KPIs Process analysis in accordance with target KPIs List of processes to be optimized using the Rosatom Production System methodology	• Basic training on the RPS methodology • Process map template • Survey template • Project form template • Typical KPIs for the key processes
Data and platform development	Formation and collection of data on municipal processes that need to be processed using digital tools Determining the frequency of a process performance using data Analysis of the possibility of improving processes using the basic functions of the platform Identification of additional digital services that the city can provide using the platform Platform development	• List of key data • Key features of a Smart City Platform • Development plan • Technical specification for the Platform developers

PROJECT EXAMPLE: «OPTIMIZATION OF THE PITS REMOVAL PROCESS»

Power of a city government

Article 14. p. 1.5

"... the implementation of municipal control over the safety of local roads..."

Responsible department

Department of municipal facilities

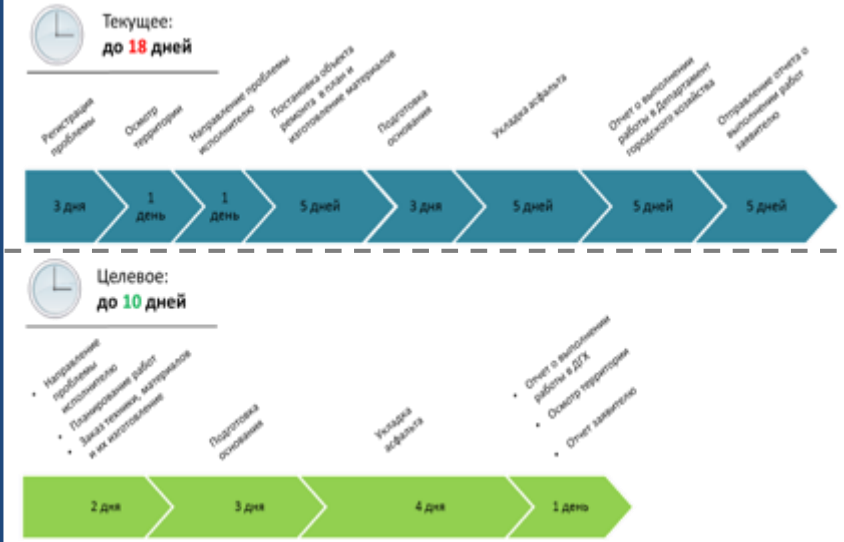
Contractor

City government subordinate organization

Processes

- **Participants:** City government, subordinate organization
- **Customers:** Local citizens
- **Metrics:** Lead time

Current process – pit removal time - 18 days
Target process - pit removal time - 10 days
Project: Optimization of the process of pits removal on the roads



Digitalization

Data

- Complaints from citizens
- Data received via platform module "City Problems"
- Video monitoring

Platform modules

City government - citizen

- Module "City problems"

City government - subordinate organization

- City government user account
- Subordinate organization user account

Digital services

- Online monitoring of the state and performance of the work on the road pits removal

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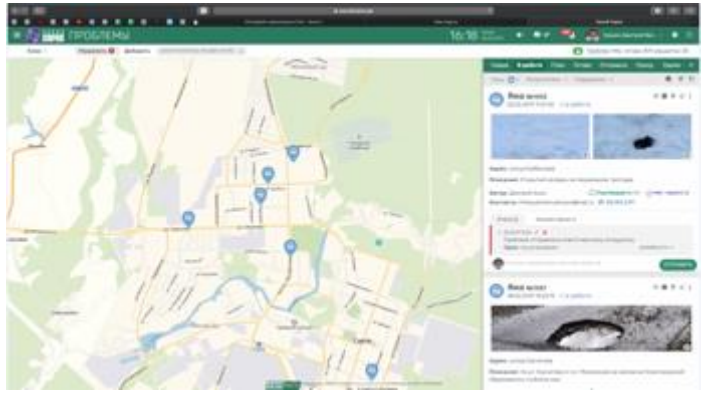

Case Study: LEAN SMART CITY in Sarov

LEAN SMART CITY PROJECT IN SAROV

KEY EVENTS AND PROJECT MILESTONES

October 3 — LSC project kick-off meeting

October 9 — Training of managers and participants of project teams on project implementation methodology, basics and toolkit of RPS

October 12 — Issue of a resolution on the implementation of the Lean City of Sarov" project, creation of a project team, approval of a list of pilot projects

November 16 — Inclusion of the smart city developers in the project team for the implementation of the lean + smart city concept

November 23 — RPS projects kick-off meeting; 8 optimization projects approved and initiated

November 23 — The functional requirements for the development of the Smart City base platform were prepared on the basis of the initiated RPS projects

December 04 — Additionally, the project "Identification and statement of ownerless networks on municipal registration" was launched

December 23 — Workshop to review the preliminary list of processes / problems requiring improvement

- October 2018: start of the LSC project in Sarov
- The project is implemented with the assistance of specialists from the RPS office from Moscow and Nizhny Novgorod
- More than 140 people participated in the RPS training
- More than 80 optimization projects are initiated for the 2019-2020
- January 2019: RPS situational centre is opened
- General results of the project: the time for providing a range of municipal services has been shortened, communication processes have been automated and the general efficiency of the municipal system has been increased

EXAMPLES OF PROJECTS UNDER THE «LEAN SMART CITY» METHODOLOGY

Project goals:

- Improvement of the efficiency of municipal services
- Increase of citizen' satisfaction

Key project metrics:

- Decrease of a lead time
- Increase of the load of municipal facilities
- Revenue increase
- Safety enhancement
- Cost reduction

RPS project "Improving the efficiency of the municipal buses monitoring process"

Before:
- Lack of control on the part of the city administration
- Manual reconciliation of reports
- Dependence on contractor reports

After:
- Use of existing data collection infrastructure (GLONASS)
- Automatic generation of reports based on real data on the movement of buses

Effectiveness

- Cost reduction due to an objective assessment of the quality and volume of the service performed (up to 30-40%)
- Reduction in unrecorded violations by 80-100%

Quality of life in the city

- Systematic increase of the quality of public transport services
- Objective control over socially important services

RPS project “Improving the efficiency of the public transport operational control”

Before:
- Multiple and repeatable manual data entry, causing large amounts of errors

After:
- Automation of the process of accounting and control of an order placement

Effectiveness

- Increase of labour productivity
- Reduction of time and labour costs for operational control up to 95%

Quality of life in the city

- Receive accurate forecast with notification
- The growth of the quality of public transport services

EXAMPLES OF PROJECTS UNDER THE «LEAN SMART CITY» METHODOLOGY

1 Increasing the load of municipal institutions of culture, sports and additional education

The perimeter of the project includes the organization of interaction of city residents with all municipal institutions of culture, sports and additional education through the Smart City platform with the possibility of ordering and paying for services through the platform. The public pool is selected as the first object as the most popular service in the city.

2 Repair of general utilities

The perimeter of the project includes the creation of digital twins of all general utilities on the Smart City platform, sending push notifications to all utilities owners in the event of an accident, routine repair or the new network construction, as well as the electronic coordination of repair issues.

Currently, the optimization project is “City Water Utility”.

3 Establishment of interaction with SMEs through the "Smart City” platform

The perimeter of the project includes registration of the maximum possible number of SMEs on the platform (initial parameter - 30%), the provision of municipal and public services for SMEs through the platform, as well as the organization of advertising and payment for services through the platform.