



City of Johannesburg

Smart City

Innovation Challenge

COVID-19 Pandemic Crisis Response

Open Call Brief & Application Information Pack

City of Johannesburg

SMART CITY INNOVATION CHALLENGE

COVID-19
Pandemic
Crisis
Response



**WIN
R100K**
rapid prototyping
& mentorship



APPLICATION DEADLINE:

20 July 2020, Midnight

ONLINE INFORMATION SESSIONS:

Tshimologong Innovation Precinct will be hosting a live information session to answer questions and give more information on the challenge expectations.

SESSION: 15 JULY 2020, 14:00 - 15:00

RSVP by emailing: nelson@tshimologong.joburg

1. WHAT IS IT AND FOR WHO?

Are you a 4IR Startup? A company developing Smart City technologies? An innovator ready to prototype your COVID-19 responses? Apply to our open call for smart city innovation solutions to respond to the Covid-19 pandemic, lockdown protocols and a new reality for the future of our City and its residents.

The aim of the Smart City Technology Challenge is to find and develop digital technology solutions to urban and community challenges faced by the city. The lockdown's are impacting the country's most marginalised populations with the spread of Covid-19 affecting overcrowded communities that lack basic services the most.

1.1 CITY OF JOHANNESBURG SMART CITY FOCUS

Smart digital technology solutions help citizens stay connected and allow businesses, citizens and public administrations to find ways to respond faster and in a more integrated way to both crisis situations and daily life.

The importance of rapid data collection and the interaction between citizens, national and local government during the COVID 19 crisis has shown how valuable smart solutions are. The development of smart digital technologies now, can help the City in the detection, tracking, and prediction of crisis situations and stress points going forward.

The City of Johannesburg and its partners have been working hard to offer the necessary support in High-Density areas like Informal Settlements, Townships, and the Inner City, but still face challenges in these core areas.



SAFETY:

Increased incidents of gender based violence, looting and malicious damage to property such as shops, schools and clinics under the lockdown. The economic challenges that follow the pandemic will exacerbate these issues further. **How can the city use digital technology solutions to mitigate further damage?**



FOOD SECURITY:

Hunger poses the greatest threat to South Africans' at this time. The government has partnered with NPCs and churches for food distribution but there are many challenges that include lack of data, lack of distribution coordination, health concerns and the lack of capacity. **How can digital technologies assist with the food distribution and redistribution process?**



SMART MOBILITY SOLUTIONS:

With the government preparing to ease lockdown, public transportation presents the biggest risk of the spread of infection. Affordable screening technology needs to be found to assist in this regard. **How can digital technologies assist in managing and maintaining safe public transport?**

Prioritizing the use of resources and designing targeted responses with citizens being most important. Knowing that some people are too poor to have this access to basic services, exposes us all to systemic risks. Thinking needs to be geared toward innovative solutions that solve problems in these three areas of focus.

1.2 SOLUTION SCOPE

Solutions should either Save Lives or Support Livelihoods.



SAVING LIVES solutions are those that will enable detection, tracking, and prediction of the spread of the virus, and improve healthcare and security in the city.

SUPPORTING LIVELIHOOD solutions are those that help the city and its citizens reduce vulnerability, improve food security, and uphold human dignity. These are solutions that may additionally enable the city citizens to be entrepreneurial and find new ways to sustain themselves.

The ability to engage citizen participation through digital and mobile platforms are crucial in all these technologies and need to take priority. Solutions can focus on the following areas of engagement for the City of Johannesburg

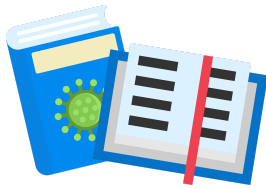
- Interdepartmental communication and coordination during crisis management.
- Management of access and distribution of critical resources through the City and its partners.
- Information and IT solutions to protect health administrators and others on the frontline.
- Knowledge and data support for COVID crisis operations.
- Solutions to assist the economy and society to re-open safely.
- Systems to combat misinformation.
- Community engagement platforms.
- Workers' support systems (to include all kind of works in the system, health, waste, water, etc)

While the definition of 'digital technologies' is open to various digital and interactive technology solutions, we understand that the following are core areas of focus. See below for more detail.

- Artificial Intelligence
- Augmented Reality
- Blockchain
- Internet of Things (IoT)
- Gamification
- Data Collection
- Data Analysis and Visualisation
- Robotics and Drones solutions

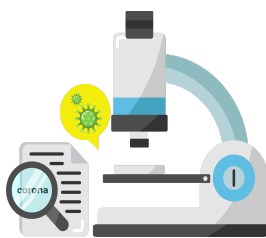
2. PRIZES & OUTCOMES

Two winning applications will be taken into a rapid development and prototype launching process through a virtual bootcamp and prototyping grant. This will be followed by opportunity for further funding to take one solution into implementation. This will be a collaborative effort between startups, corporate companies, investors, hubs, makerspaces, and the government through the City of Johannesburg's Smart City Office.



Prototyping Grant & Partnership Development

A base grant of R100,000.00 will be given to two solutions for the rapid development of prototypes and implementation procedures. This is to be followed by a development grant or partnership to further develop and prototype the solutions to prepare for activation of the technology as fast as possible within the City of Johannesburg.



Virtual Bootcamp with Access to Mentors

A virtual bootcamp will form part of the rapid prototyping process with the aim to assist the chosen solutions into an MVP. Expert mentors and city advisors will assist set timelines and ensure that the solutions to be launched will be impactful and relevant. Mentors will have technical, healthcare and business expertise.

2.1 BOOTCAMP EXPECTED OUTCOMES ARE:

- A. Development and full documentation of a minimum viable product of the system, software or hardware solution.
- B. Consultation with the relevant city department with whom the solution may be implemented.
- C. Implementation strategy for the relevant City Department.
 - a. Infrastructure required.
 - b. Timeline for implementation.
 - c. Budget required.
 - d. Risks.

3. APPLICATION & APPLICATION CRITERIA

APPLICATION DEADLINE:

20 July 2020, Midnight

PROPOSAL APPLICATION FORM:

<https://airtable.com/shrJ83CmfGUB5v5Pm>

This open call is open to South African individuals and companies. All applications will go through an initial vetting process to assure that they meet the following criteria. Following initial vetting, six solutions will be chosen to enter into a pitching phase from which two finalists will be chosen.

Applications must be made online (using the form link above or through the City of Johannesburg website) by completing the application for and uploading all relevant documentation.

3.1 INDIVIDUAL APPLICANT DOCUMENTATION REQUIRED:

1. Curriculum Vitae, highlighting experience in the field of the proposal.
2. South African ID
3. Rates Statement (not in arrears) or Lease Agreement as proof of address.
4. Tax Clearance Certificate.

3.2 COMPANY OR BUSINESS APPLICANT DOCUMENTATION REQUIRED:

1. Company Profile, highlighting experience in the field of the proposal.
2. South African Company Registration.
3. Municipal rates and taxes for company and all directors not in arrears for more than 90 days (if in arrears must provide proof of arrangement to pay the council) or sworn affidavit or valid lease agreement not older than three (3) months.
4. List of Company Management & ID's.
5. Tax Clearance Certificate.
6. Valid and original B-BBEE certificate or certified copy or sworn Affidavit issued from SAPS.

3.3 PROPOSAL EXPECTATIONS:

1. **Challenge Area:** Must clearly identify the problem being solved.
2. **Positioning:** Must show research or experience led position that is the impetus for the solution.
3. **Viability:** Must be a viable technology solution, which is realistic to manufacture and pilot in the City of Johannesburg.
4. **Technology:** The technology and technology areas must be clearly identified and justified for the proposed solution.

5. **Usability:** The proposal must consider its user interaction, answering who the primary users are, why and how.
6. **Illustrate & Show:** Proposal must include drawings, plans, graphs, etc. to show ways the technology or system works.
7. **Development Cost:** Must provide a prototype development budget and timeline.
8. **Piloting Environment Requirements:** Must provide a list of resources necessary to pilot the solution in the city (e.g. buildings, broadband, etc.).

3.4 INTELLECTUAL PROPERTY:

By participating in the CoJ Smart City Technology Challenge each participant thereby:

1. Declares that each solution or prototype presented is an original work and in no way violates intellectual property rights of others and releases CoJ and its partners from any and all responsibility, liability, or request for compensation for damages that should be made by any third party;
2. Acknowledges that each solution or prototype presented is the property of the startup or team, which takes full responsibility for ensuring such rights of ownership;
3. Acknowledges that any publication by CoJ of the solution or prototype on websites or social media will result in the same being visible to the public and must therefore be presented with a copyright clause and registration details with the startup in question.

4. ADDITIONAL INFORMATION

4.1 CHALLENGE TECHNOLOGY DESCRIPTIONS

AUGMENTED REALITY

An interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory and olfactory.

GAMIFICATION

A set of activities and processes to solve problems by using or applying the characteristics of game elements. Gamification commonly employs game design elements to improve user engagement and productivity.

ARTIFICIAL INTELLIGENCE

'Intelligent' digital agent that perceives its environment and takes action that maximises its chance of successfully achieving a goal. Chatbots & machine learning are examples of AI in this case.

DRONES

Drones or UAVs are involved in a wide range of applications and functions in smart cities. Such through aerial image capture or live capture for monitoring traffic, key infrastructures and monitoring development work on a regular basis.

BLOCK CHAIN

Blockchain in a Smart City can provide the infrastructure necessary for transaction management. Transparency and security are core

fundamentals of blockchain are two very important elements in smart city implementation.

ROBOTICS

Autonomous systems that may be connected to traffic systems or drones, significantly helping the work of the Smart City by collecting data or engaging control systems.

IoT - INTERNET OF THINGS

System of interrelated devices, mechanical and digital machines with the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

DATA COLLECTION

Data Collection via digital means with citizens, smart city sensors, vehicular networks, and many more validated sources are important contributions to rapidly dealing with crisis situations and assessing response effectiveness.

DATA ANALYSIS & VISUALISATION

Data Analysis is the process of bringing order and structure to collected data. It turns data into information people can use to look for trends, groupings, or other relationships between different types of data. Data visualization is the process of putting data into visual format that helps inform analysis and interpretation. Data visuals are used to communicate results to stakeholders and community.

4.2 CHALLENGE PARTNERS

CITY OF JOHANNESBURG SMART CITY OFFICE

The **Smart City Office** has the responsibility of providing strategic guidance for the implementation and oversight of the City's Mayoral Priority that requires all departments and entities to adopt measures to ensure that Johannesburg delivers services in an innovative and digitally enhanced way. With technology as an enabler, services must become easier to access and use, delivered more efficiently and responsively; whilst governance of the institution becomes more open, transparent and financially and environmentally sustainable for generations to come. It is also the SCO's responsibility to initiate and Incubate and demonstrate innovative and strategic smart city initiatives.

TSHIMOLOGONG INNOVATION PRECINCT & TSHIMOLOGONG MAKERSPACE

Tshimologong Innovation Precinct operating as a private company and innovation precinct, Tshimologong was established by Wits University to facilitate the creation and incubation of technology and digital startups. Attracting entrepreneurs and innovators with real life solutions to African problems, Tshimologong Precinct strives to, methodically and in common purpose with others of the same mind, move the needle on technological and digital innovation.

Tshimologong Makerspace seeks to promote and enable access to innovation through collaborative making, training, upskilling and experimentation / purposeful play (R&D). Some of the practical engagements housed in the space include 4IR (Fourth Industrial Revolution) technologies such as 3D printing (e.g. prototyping & customisation), IoT (Internet of Things), Electronics & robotics, Augmented Reality (AR), Virtual Reality (VR) and Design for digital fabrication to production management.

FAK'UGESI AFRICAN DIGITAL INNOVATION FESTIVAL

Fak'ugesi African Digital Innovation Festival is an annual Johannesburg based festival that takes place in Braamfontien, which is rooted in showcasing and developing skills in technology, art and culture in Africa. Founded in 2014 as a collaboration between the Tshimologong Digital Innovation Precinct and the Wits Digital Arts Department, the festival takes as its starting point the idea that in order for innovation with technology to succeed, a strong connection needs to be made to African cultural practices and creative encounters.

JOBURG CENTER FOR SOFTWARE ENGINEERING (JCSE)

The **Joburg Centre for Software Engineering (JCSE)** is a three way partnership between government, academia and industry. Based at Wits University, the JCSE is multifaceted with various programmes and facilities positioning it as a focal point of a software development industry for South Africa and the rest of the continent.