

NATIONAL  
**SPACE**  
CONFERENCE  
2024

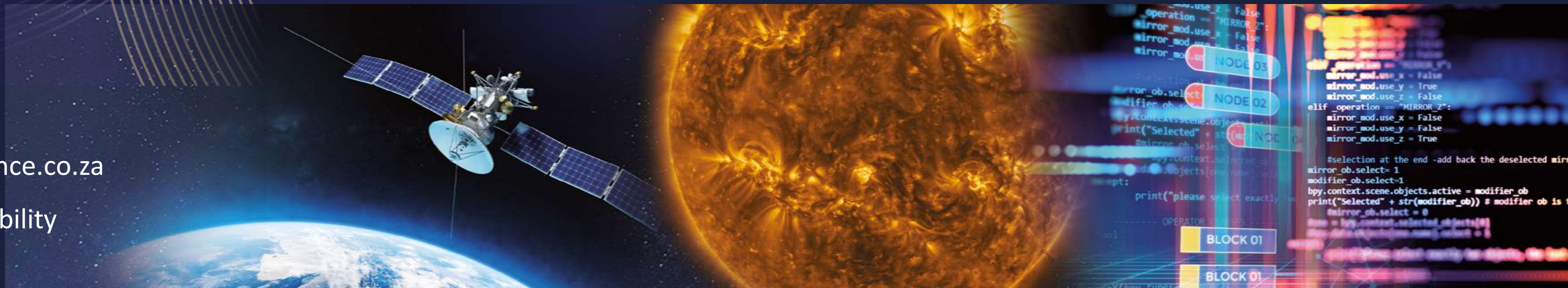
# Space Science and Innovation for Sustainability

## National Space Conference 2024 -Highlights

Adv Lulu Makapela, National Earth Observations  
and Space Secretariat ( DSI-NEOSS) , CSIR

[www.spaceconference.co.za](http://www.spaceconference.co.za)

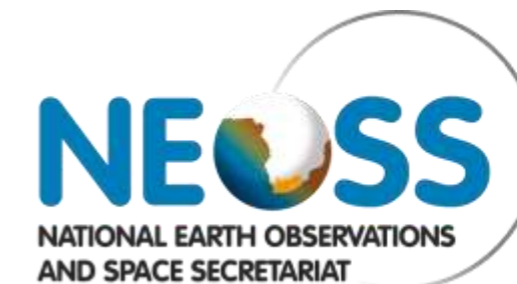
#SpaceSustainability



science & innovation  
Department:  
Science and Innovation  
REPUBLIC OF SOUTH AFRICA



sa air force  
Department:  
Defence  
REPUBLIC OF SOUTH AFRICA



# Organisers and Partners



# Space Science and Innovation for Sustainability

Explored the pivotal role of space science and technology in advancing sustainable development across three core pillars : **society** , **economy** and the **environment**.

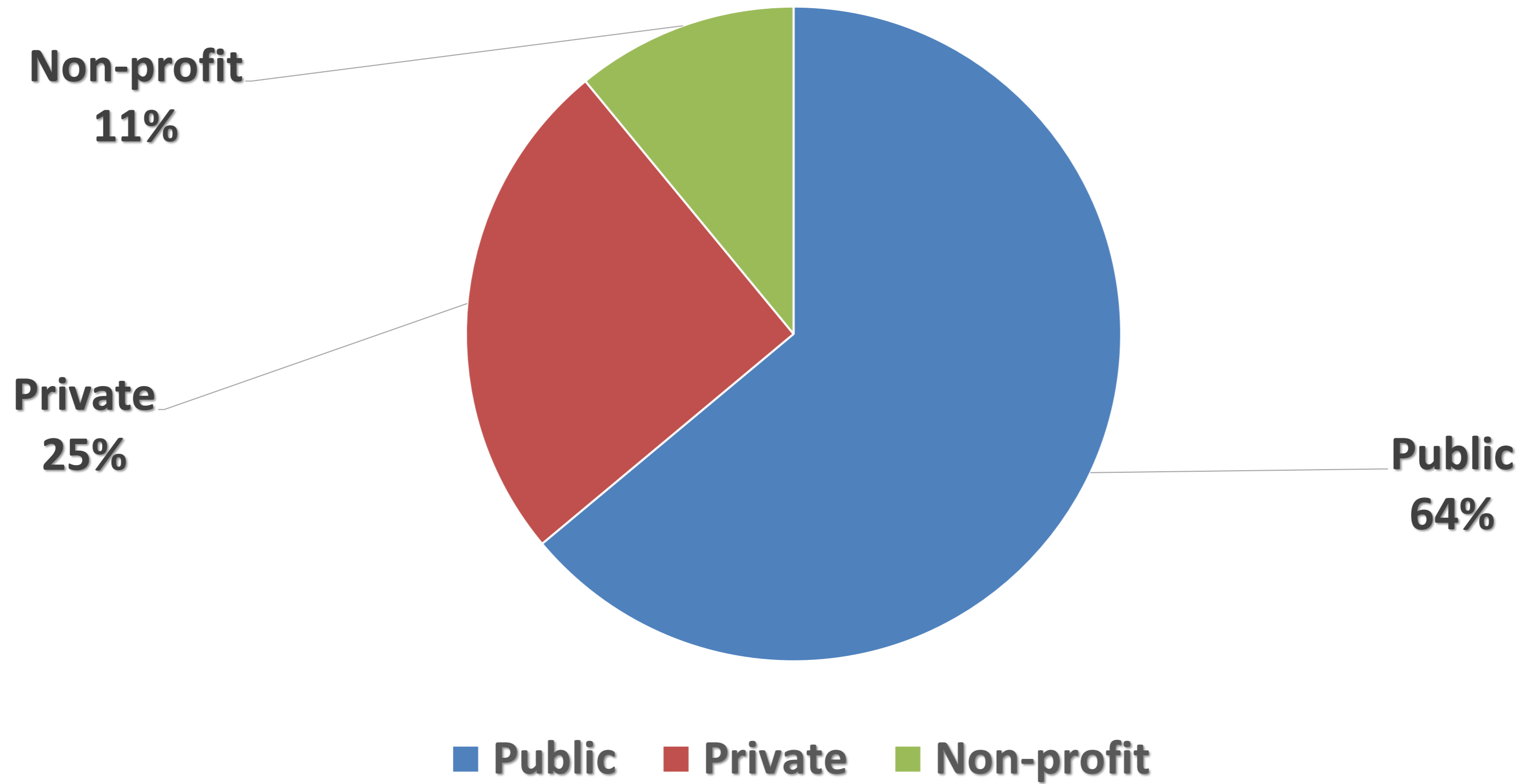
SPACE AND SOCIAL SUSTAINABILITY

SPACE AND ECONOMIC SUSTAINABILITY

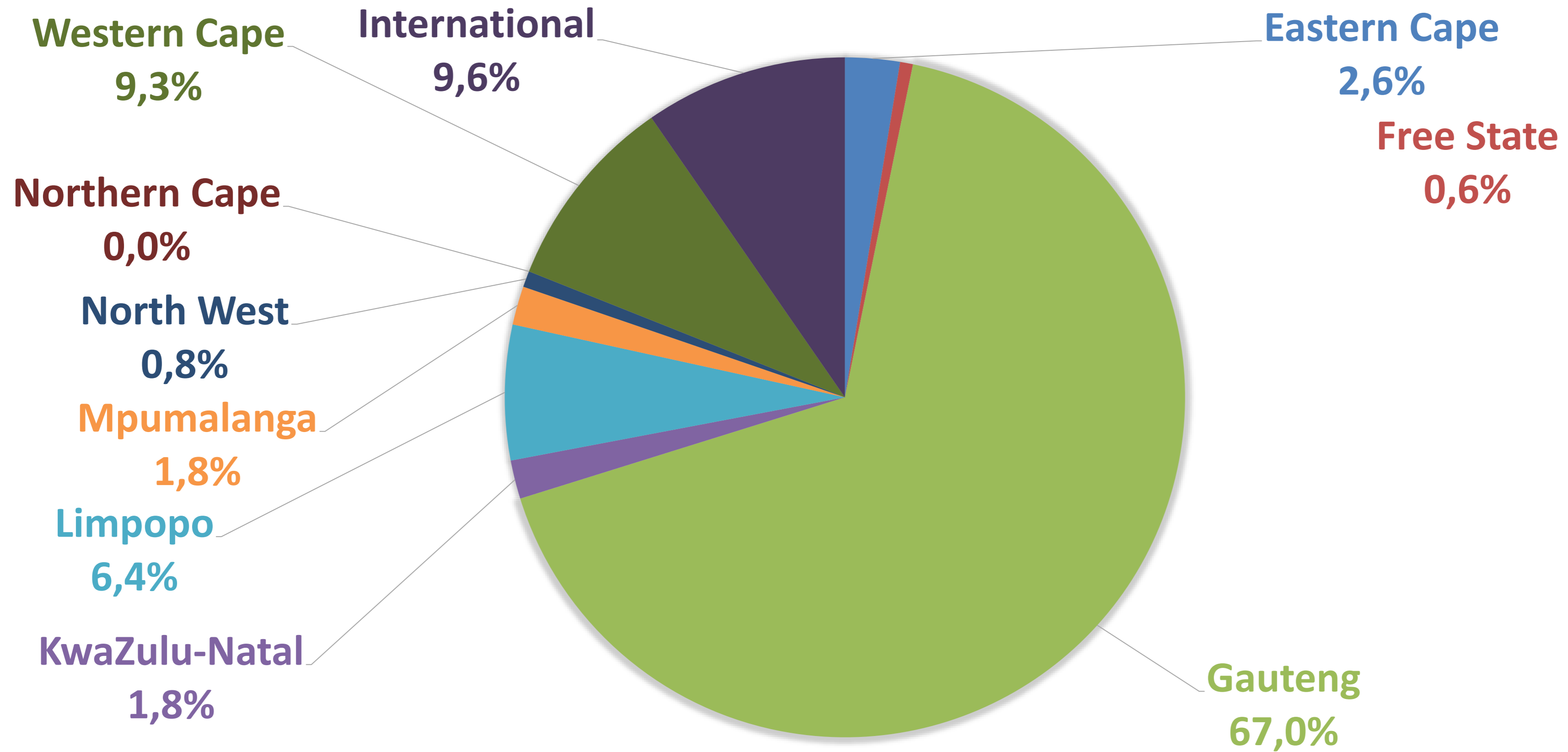
DAILY THEMES

SPACE AND ENVIRONMENTAL SUSTAINABILITY

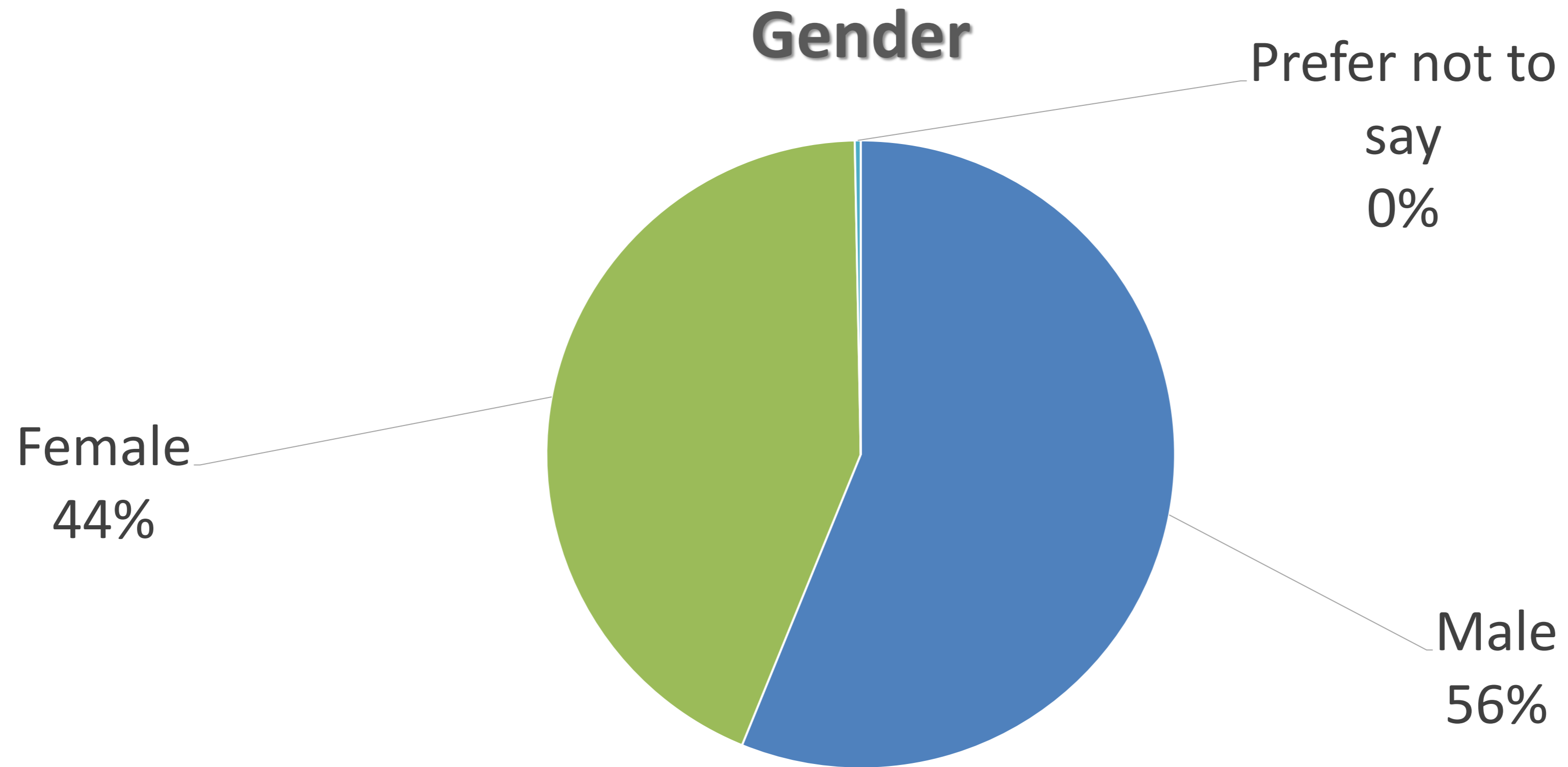
# Organisations



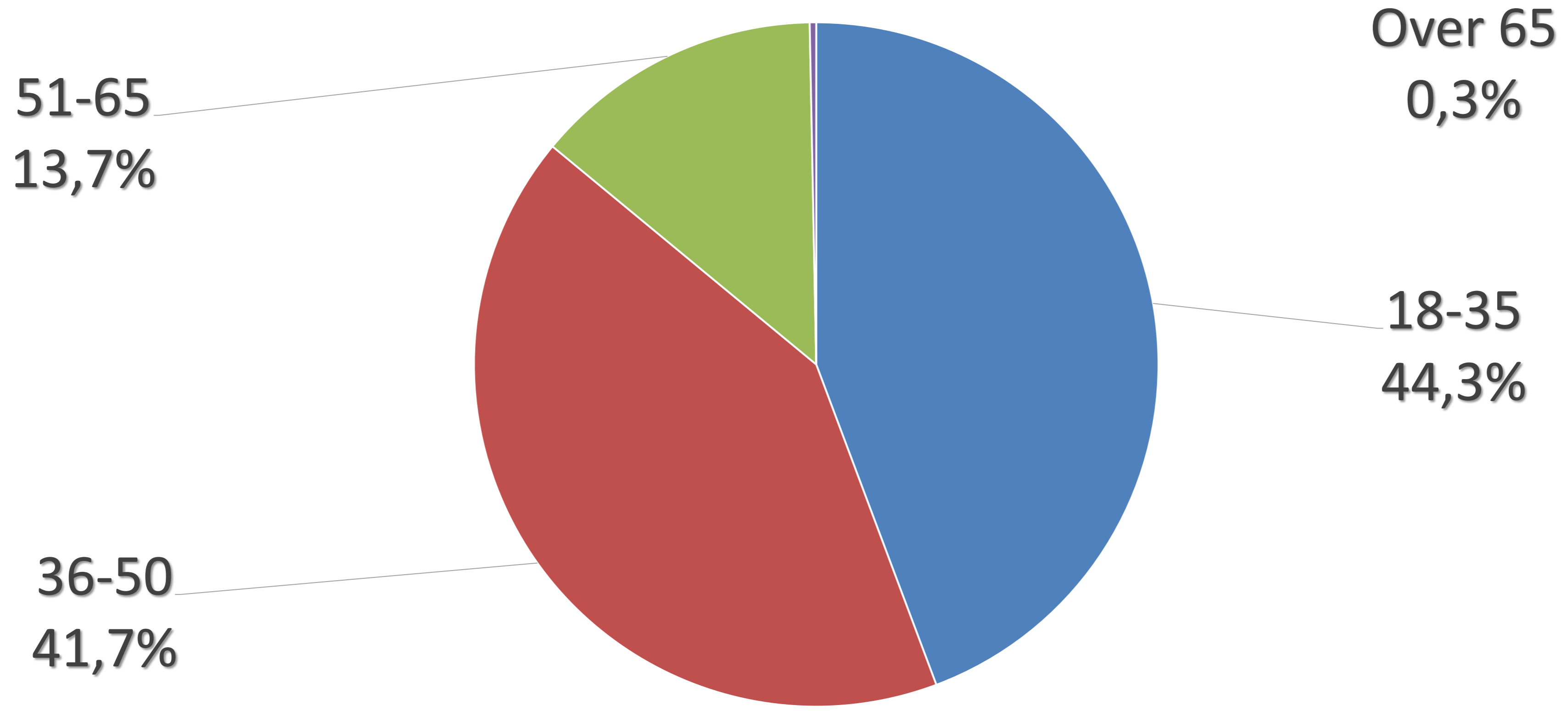
# GEOGRAPHY



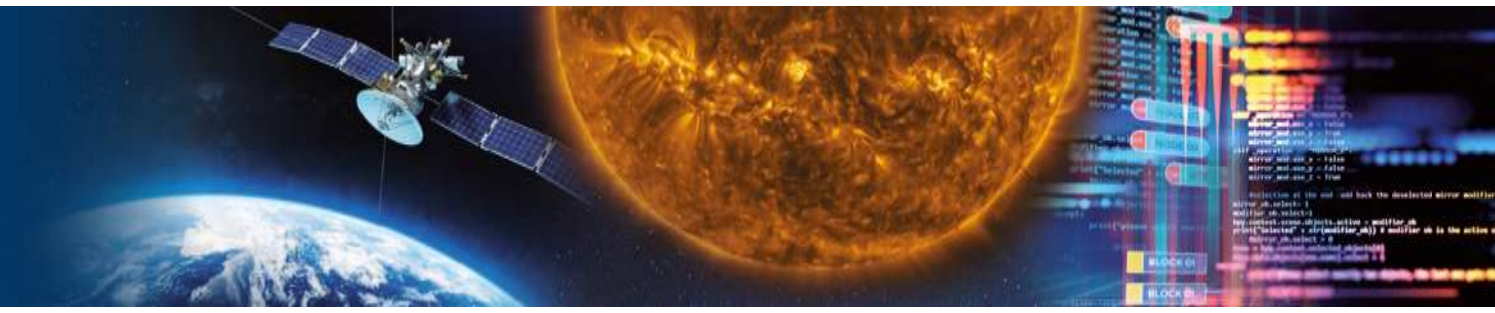
# GENDER



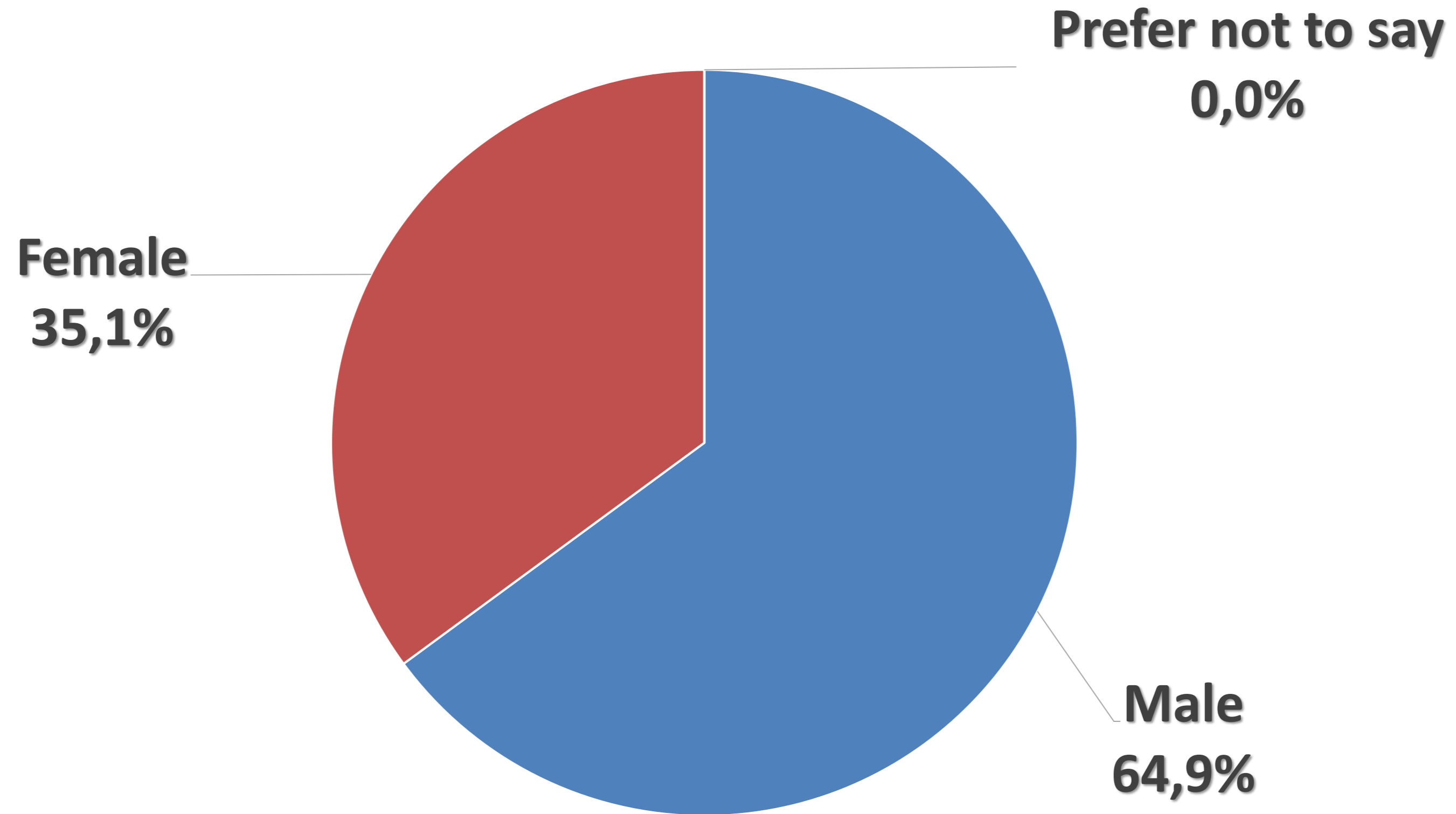
# GENERATION



# PROGRAMME



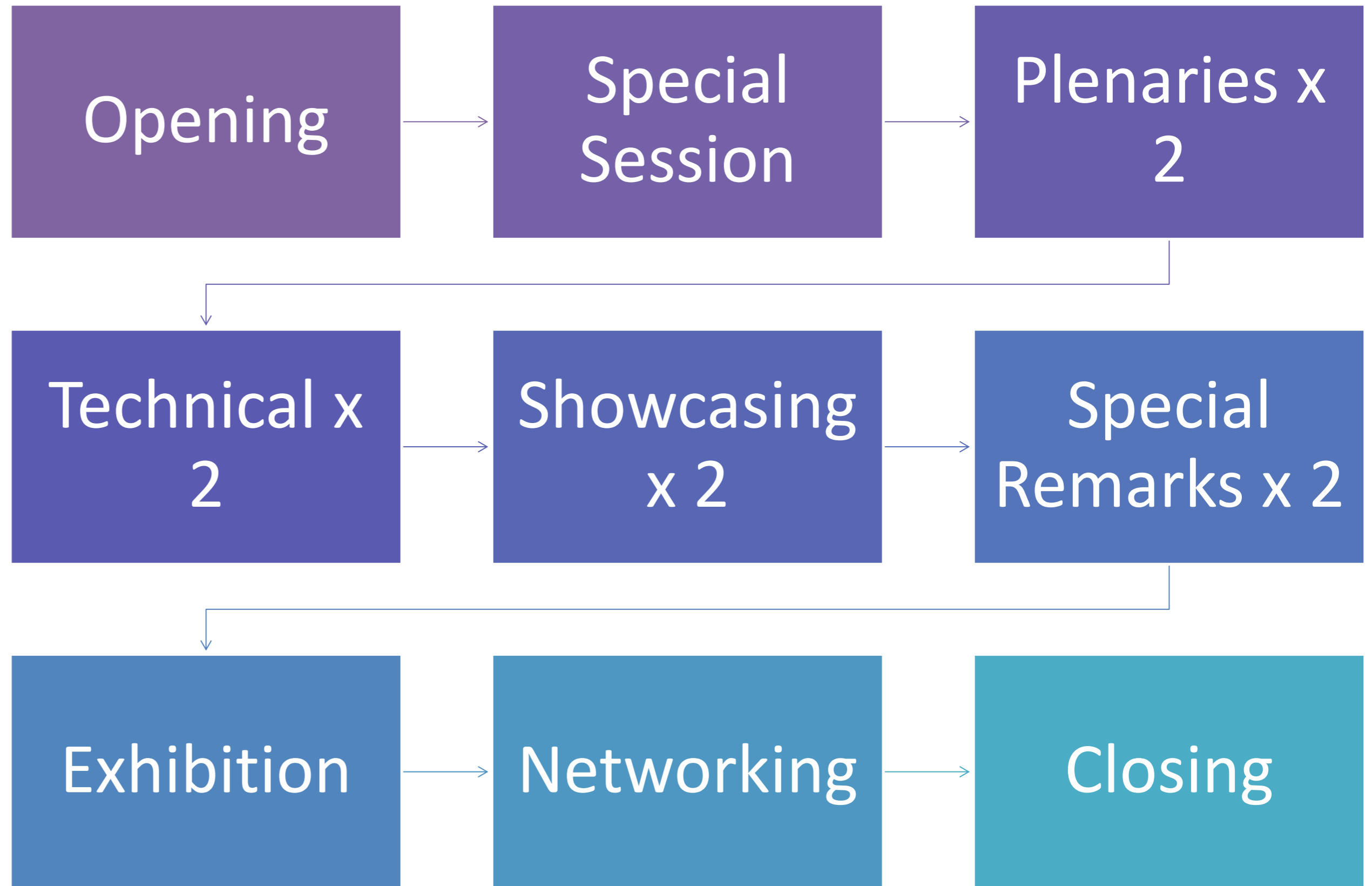
## Gender





# SESSIONS

13 SESSIONS



# OPENING SESSION

WELCOME

CULTURAL PERFORMANCE

INTRODUCTORY REMARKS

KEYNOTES

HIGHLIGHT PRESENTATION

LAUNCH OF PAIS

Focussed on the nation's achievements in space science and contributions to sustainable development.

## Welcome

- The CSIR's role in advancing scientific research and innovation in South Africa, particularly in space science.
- Highlighted the CSIR's commitment to leveraging space technologies for societal benefit and underscored the importance of the National Space Conference as a platform for fostering collaboration and innovation.

## Introductory Remarks

- **Innovation and Space:** The opening remarks emphasized the role of space technologies in driving innovation and their impact on South Africa's democratic journey.

## Keynote Addresses

- **Aviation and Safety:** The importance of space technologies in enhancing aviation safety and efficiency was discussed, underscoring their critical role in national security.
- **SANSA's Contributions:** A decade of innovation by the South African National Space Agency (SANSA) was celebrated, showcasing the organization's journey and impact on space science and innovation.

## Highlight Presentation

His presentation titled "South Africa's Space Science Journey: From Democracy to Sustainable Development" provided an in-depth overview of the country's progress in space science over the past three decades.

## Launch of PAIS

**Precision Agriculture:** The launch of the Precision Agriculture Information System (PAIS) was a significant milestone, aimed at leveraging space technologies for sustainable agricultural practices.

# SPECIAL SESSION

## SPECIAL SESSION: INTERNATIONAL COLLABORATION FOR SUSTAINABLE DEVELOPMENT GOALS

This session explored the critical role of international collaboration in achieving the United Nations Sustainable Development Goals (SDGs). Speakers emphasized the importance of partnerships between space agencies, governments, and organizations to address global challenges.

Key Points:

- **Strategic Multilateral Arrangements:** The session highlighted how multilateral cooperation can drive shared economic and social development.
- **Space Science and Innovation:** Global and regional partnerships were recognized as vital for advancing space science and innovation.
- **African Development:** The role of space science and technology in driving Africa's development was discussed, with a focus on leveraging partnerships to enhance the continent's space capabilities.

## Remarks by the African Space Agencies

Gabon

Egypt

Angola

Ghana

DRG

AFRICAN HEADS OF SPACE AGENCIES

DSI

DIRCO

SANSA

# SPECIAL REMARKS



## 2 SPECIAL REMARKS

### **AFRICA SPACE COUNCIL (ASC)**

Update on the appointment of the African Space Council and the African Space Agency hosted by Egypt by the Vice President of the Africa Space Council.

### **INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA (ICASA)**

Update on the new proposed licensing framework for satellite Services by the Chairperson, ICASA  
for

# SHOWCASING SESSIONS

## 2 SHOWCASING SESSIONS

### SHOWCASING SESSION 1: DRIVING SPACE INNOVATION AND INVESTMENT THROUGH COLLABORATIVE EFFORTS

This session delved into the transformative impact of collaborations between government agencies, private companies, and research institutions on space innovation. Discussions centered on fostering sustainable solutions to societal challenges and maximizing investment in the space sector.

#### Key Points:

- **National Space Policy:** The session highlighted the importance of harnessing national space policies to drive collaboration and investment.
- **Public-Private Partnerships:** The role of public-private partnerships in enhancing crop production and other societal benefits through space technology was emphasized.
- **Commercialization Pathways:** Discussions included strategies for commercializing space innovations to advance industrial ventures.

### SHOWCASING SESSION 2: INTEGRATED ENVIRONMENTAL MONITORING

The final showcasing session focused on the use of satellite and remote sensing technologies for continuous environmental monitoring. Speakers showcased various integrated data platforms supporting environmental assessments and policymaking for sustainable development.

#### Key Points:

- **Ecological Niche Modelling:** The session highlighted the use of ecological niche modelling for mapping habitat suitability, demonstrating its application in environmental management.
- **Soil Moisture Monitoring:** Techniques for monitoring soil moisture as an indicator of drought patterns were discussed, showcasing the role of remote sensing in agricultural sustainability.
- **Hydrological Changes:** The assessment of changes in the hydrological regime of wetlands was presented as a critical tool for environmental sustainability.

# PLENARY SESSIONS

## 2 PLENARY SESSIONS

### PLENARY 1: COMMERCIAL SPACE VENTURES AND SUSTAINABLE GROWTH

The second day began with a plenary session focusing on the role of commercial space ventures in driving economic sustainability. The session highlighted how private space companies contribute to technological advancements, create new markets, and stimulate economic growth.

Key Points:

- **Global Success:** Case studies were presented on how the South African space industry has become a global success, showcasing the benefits of public-private partnerships.
- **Earth Observation:** Innovations in Earth observation payloads were discussed, emphasising their role in driving sustainability and economic growth.
- **Space Big Data:** The potential of harnessing space big data for sustainable growth was explored, along with its applications in various industries.

### PLENARY 2: RESILIENT SPACE-BASED COMMUNICATION, NAVIGATION, AND SECURITY SYSTEMS

The final day focuses on the importance of resilient satellite communication and navigation systems for national security, disaster management, and infrastructure resilience. Speakers discuss how these systems support sustainable peace and stability, with a particular emphasis on their role in disaster preparedness and response.

Key Points:

- The critical role of satellite communications in aerospace and national defense.
- Development of GNSS-based systems for weather forecasting and space weather monitoring.
- Challenges in space positioning and the need for improved communication systems.

# Technical sessions

## 2 TECHNICAL SESSIONS

### TECHNICAL SESSION 1: BUILDING RESILIENT SPACE INFRASTRUCTURE AND OPERATIONS FOR A SUSTAINABLE FUTURE

This session examined the role of resilient space infrastructure and operations in promoting sustainability. Speakers presented innovations that enhance operational efficiency, resilience, and the integration of space infrastructure with terrestrial systems.

#### Key Points:

- **SAR Remote Sensing:** The use of Synthetic Aperture Radar (SAR) datasets for remote sensing applications was discussed, showcasing their potential for environmental monitoring.
- **Micro-Satellite Constellations:** The development of micro-satellite constellations for Earth observation was highlighted as a key innovation in space infrastructure.
- **InSAR-Based Monitoring:** The session explored how InSAR-based monitoring enhances safety and sustainability in critical infrastructure like tailings storage facilities and water dams.

### TECHNICAL SESSION 2: SPACE SCIENCE FOR ENVIRONMENTAL SUSTAINABILITY

The session examined the critical role of space weather in ensuring the sustainability of space-based and terrestrial systems, with an emphasis on proactive measures to protect technological systems from space weather-related challenges.

#### Key Points:

- **Role of Space Science in Sustainability:** Discussed how space science contributes to environmental sustainability by providing critical data for climate monitoring, resource management, and disaster response.
- **Impact of Space Weather on Terrestrial Systems:** Emphasised the importance of understanding space weather to protect infrastructure and ensure the continuity of essential services.
- **Proactive Measures for Environmental Monitoring:** Highlighted the need for proactive measures to safeguard technological systems from environmental impacts.

# CLOSING SESSION

## CLOSING SESSION

Summarized conference highlights and provided  
Closing remarks closing remarks and  
performances.



# EXHIBITION



24 EXHIBITORS

Organisations (Public and private) had the opportunity to exhibition, fostering collaborations and sharing

The following organisations exhibited at the conference:


# NETWORKING SESSIONS

Participants had the opportunity to network fostering collaborations and sharing insights on the latest advancements in space science.

WELCOME RECEPTION X1  
NETWORKING SESSIONS –X 2



# KEY TAKE AWAYS

- 1. Strategic Collaboration:** The conference underscored the importance of international and national collaborations in driving innovation and achieving sustainable development goals.
- 2. African Development:** The role of space science and technology in driving Africa's development was discussed, with a focus on leveraging partnerships to enhance the continent's space capabilities.
- 3. National Space Policy and Strategies:** The conference highlighted the importance of harnessing national space policies and strategies to drive collaboration and investment.
- 4. Public-Private Partnerships:** The role of public-private partnerships in enhancing space technology applications and driving economic growth was a recurring theme.
- 5. Global Success:** Case studies were presented on how the South African space industry has become a global success, showcasing the benefits of public-private partnerships.
- 6. Earth Observation:** Innovations in Earth observation payloads were discussed, emphasizing their role in driving sustainability and economic growth.
- 7. Space Big Data:** The potential of harnessing space big data for sustainable growth was explored, along with its applications in various industries.
- 8. Commercialization Pathways:** Discussions included strategies for commercializing space innovations to advance industrial ventures.
- 9. Innovation and Sustainability:** The discussions highlighted how innovations in space technologies, particularly in Earth observation and remote sensing, contribute to environmental sustainability and societal benefits.
- 10. Resilient Infrastructure:** Building resilient space infrastructure is crucial for addressing global challenges and ensuring the sustainability of space operations.

# PROGRAMME

**CSIR** International  
Convention Centre





THANK YOU  
FOR ATTENDING

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#SpaceSustainability

