NATIONAL INTEGRATED CYBERINFRASTRUCTURE SYSTEM

CHPC

20th ECMWF workshop on high performance computing in Meteorology

Leveraging diversity to push the boundaries of computing

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CHPC, South Africa

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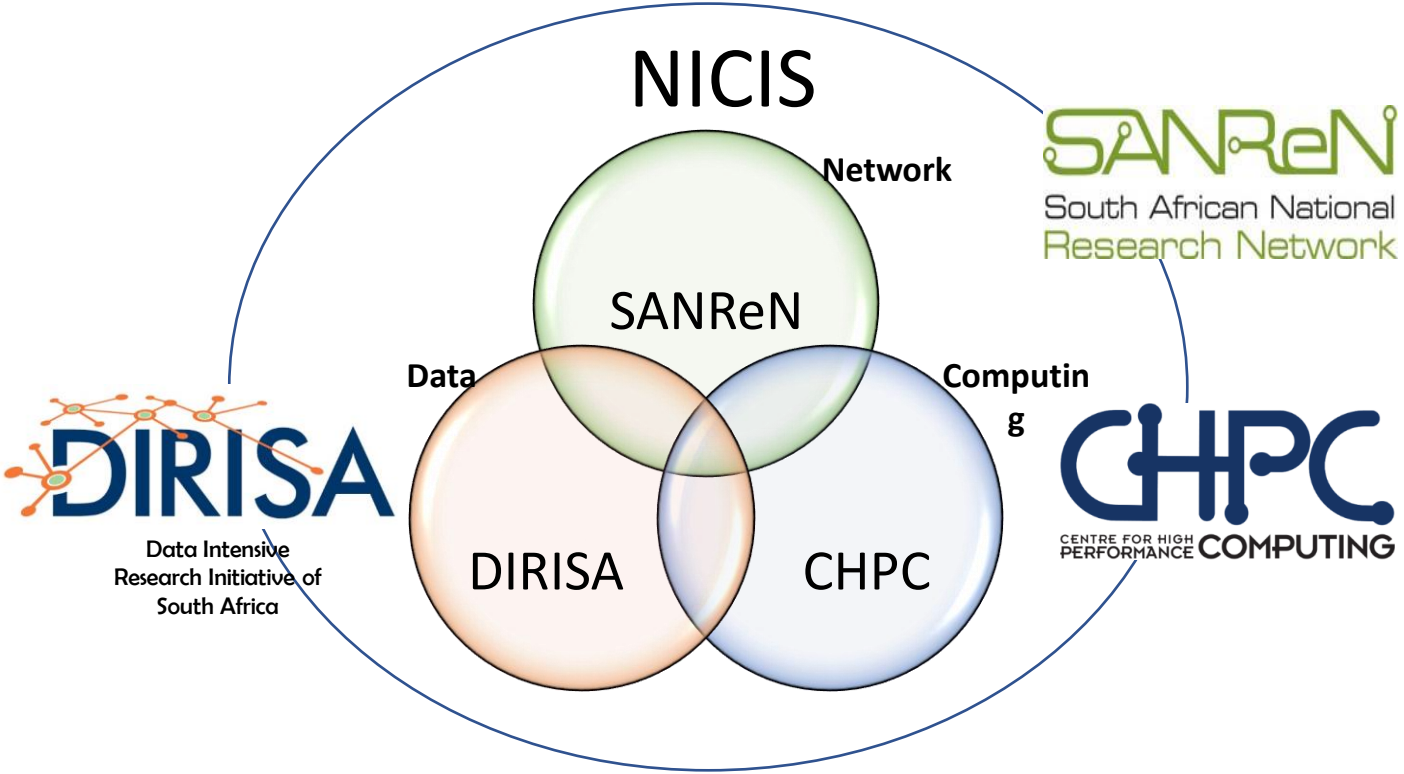
The National Integrated Cyber-Infrastructure System



The SA NREN

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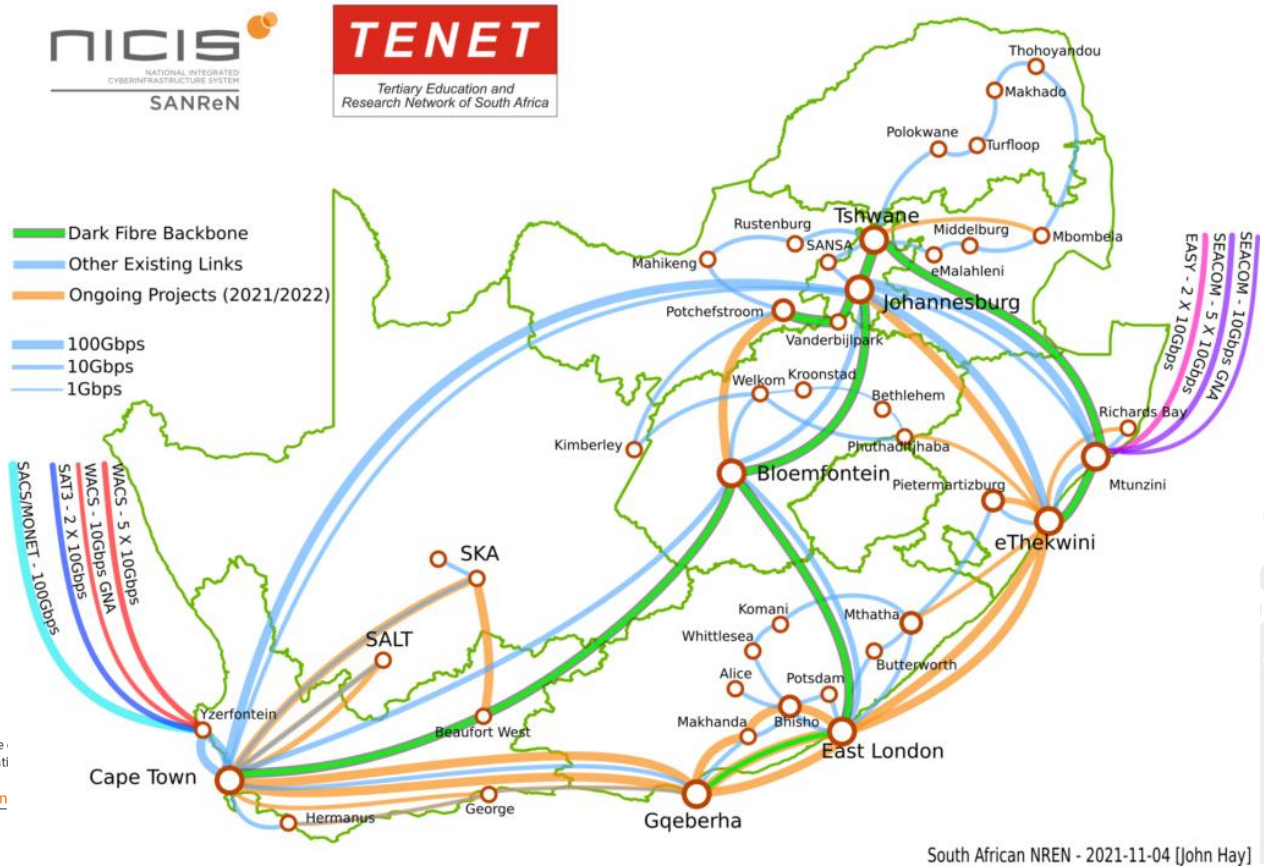

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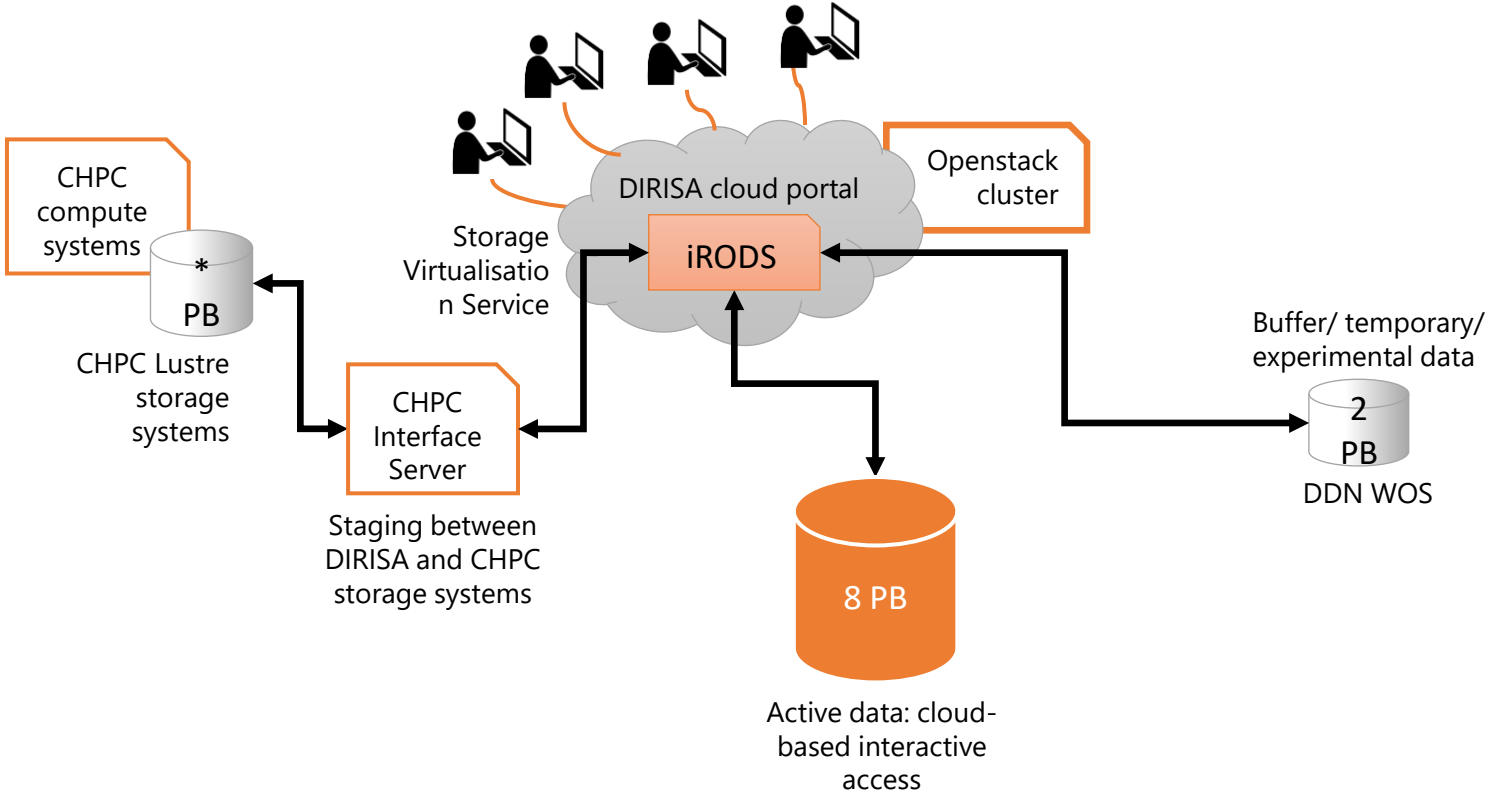
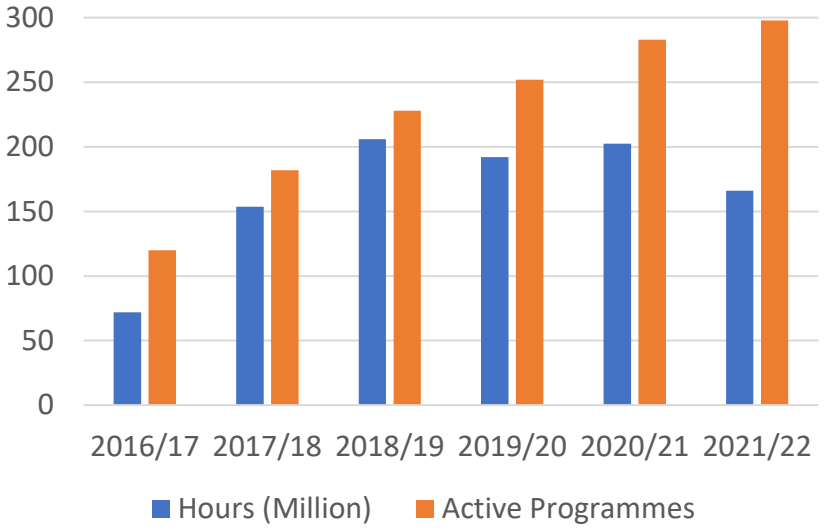
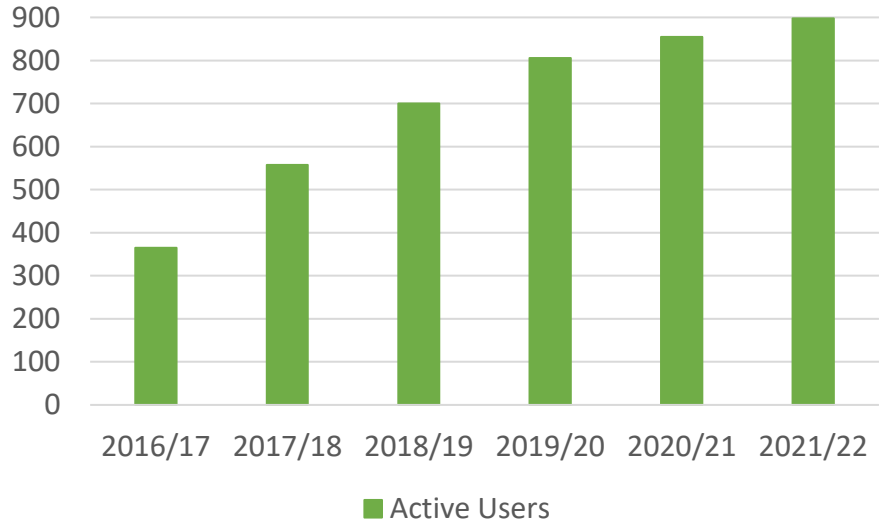
DIRISA Data Storage Architecture



CHPC Cluster Usage: *Past 6 Years Trend*





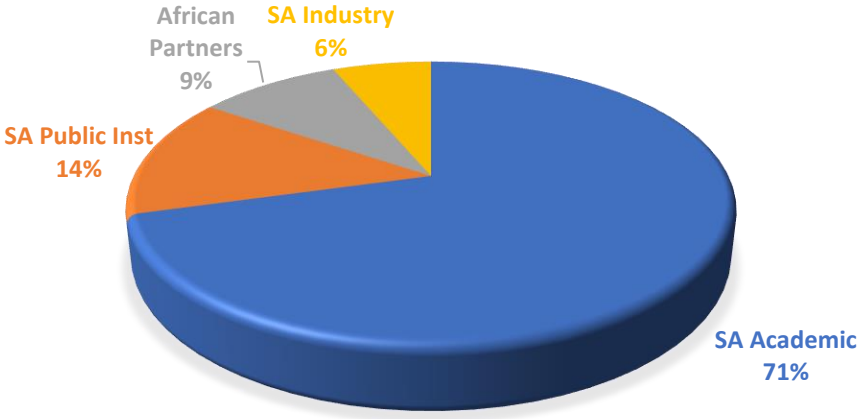
	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Hours (Million)	72	154	206	192	203	166
Active Programmes	120	182	228	252	283	298
Active Users	365	557	700	806	855	898

** Active refers to usage of more >1000 core hours*

CHPC User Categories Total Active* Programmes

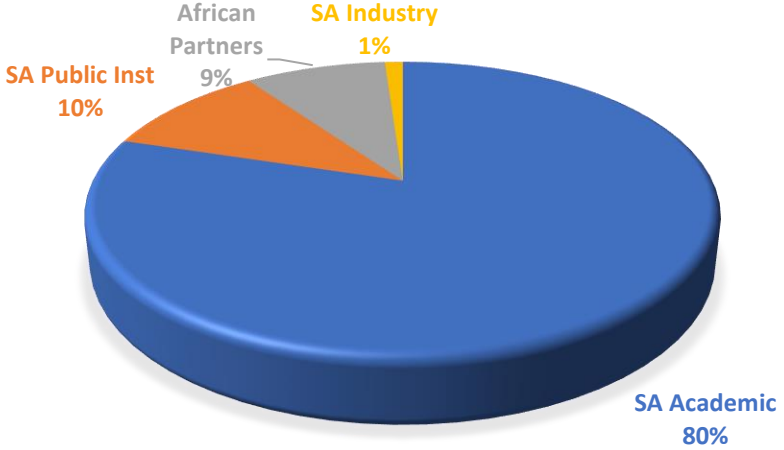
Past 6 Years

2016/17 – 2021/22



 # Active Programmes

Total: 458



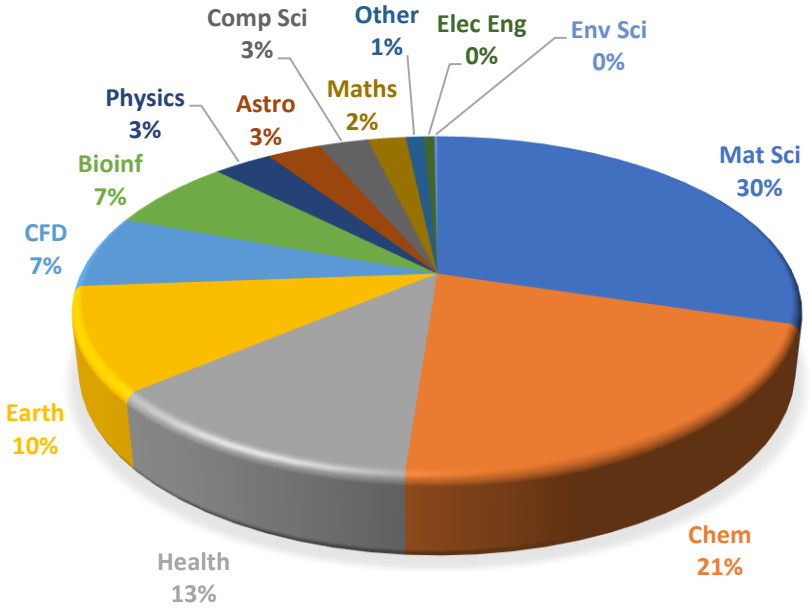
 # Hours Used (Million)

Total: 992 million

**Active refers to at least 1000 compute hours used over the relevant period.*

CHPC Domain Areas: Total Hours Used

Past 6 Years **2016/17 – 2021/22**



Domain	Hours (Million)
Mat Sci	295
Chem	212
Health	125
Earth	99
CFD	69
Bioinf	68
Physics	31
Astro	29
Comp Sci	26
Maths	20
Other	10
Elec Eng	6
Env Sci	2

Total Hours:

791 Million

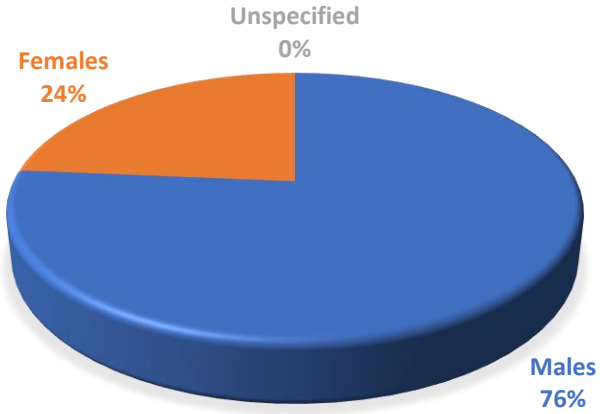
 # Hours Used (Million)

**__Active__ refers to at least 1000 compute hours used over the relevant period.*

Gender: Principal Investigators and Users

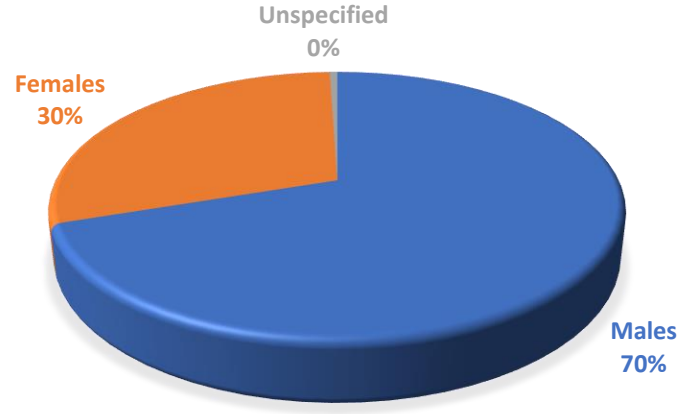
Past 6 Years **2016/17 – 2021/22**

Principal Investigators:



Total PIs: 457

Users:

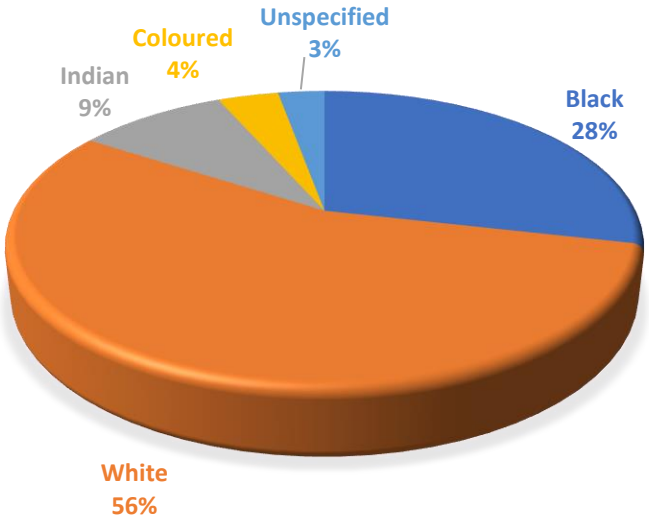


Total Users: 1728

Demographics: Principal Investigators and Users

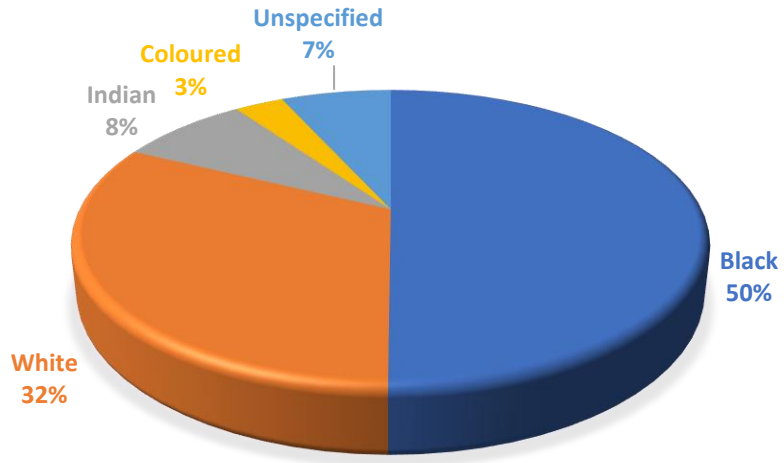
Past 6 Years **2016/17 – 2021/22**

Principal Investigators:



Total PIs: 457

Users:



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CHPC Student Cluster Competition (SCC)

International SCC Competition (Germany)

2013 - 1st Place

2014 - 1st Place

2015 - 2nd Place

2016 - 1st Place

2017 - 2nd Place

2018 - 3rd Place

2019 - 1st Place

2020 – 2022 Participated in Virtual Competitions…

CHPC Student Cluster Competition (SCC)

Stage 1: Local competition in South Africa

20 teams of 4 students (80 in total)

Stage 2: National Competition at CHPC Conference

10 teams of 4 students (40 in total)

Stage 3: International Competition at ISC in Germany

1 team of 6 students

High School Level

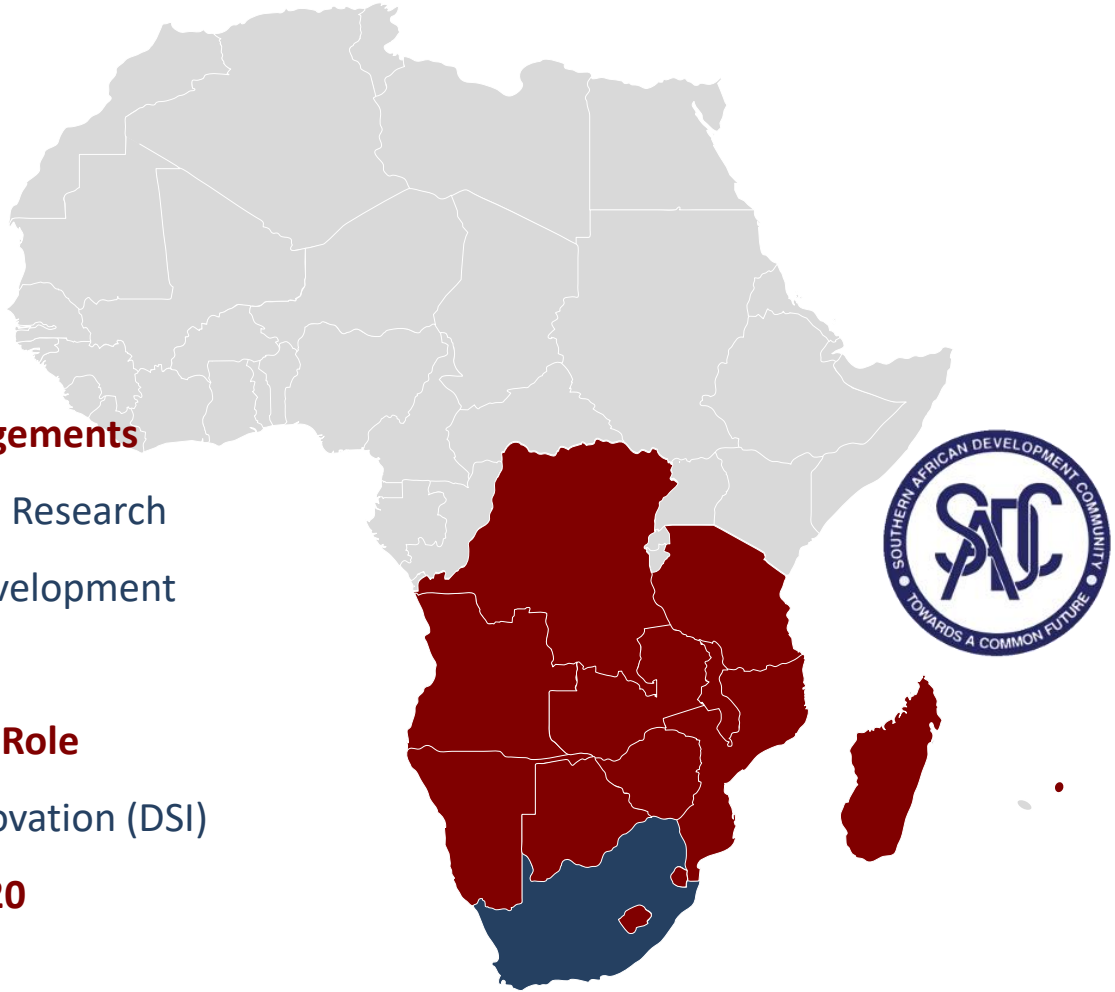
- DIRISA Coding School
  - Introducing python programming and data science concepts to high school learners
- CHPC Learn how to code
  - Introducing scratch programming to high school learners

Focus on Africa

CHPC and SADC Countries

- **SADC:** 16 Countries
- **Cyber-Infrastructure** Framework
- **Ministerial** Approvals in 2016
- **Annual** SADC Senior Officials **Engagements**
- Policies, Compute Resources, Data, Research Networks, Human Capital Development
- **Regional Integration** Focus
- CHPC within **NICIS** playing **Leading Role**
- SA Department of Science and Innovation (DSI)

3 Year Funding started in 2020



Inclusivity drives innovation

Diverse perspectives

Improved decision making

Increased productivity

Better talent retention and attraction

Market opportunities

Social cohesion

Global competetiveness

In Conclusion

- Diversity in technology
- Diversity in workflows
- Diversity in human resources

In Conclusion

- Diversity in technology
- Diversity in workflows
- Diversity in human resources
- Diversity in age

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Enkosi bantwana'abahle, I thank you for your attention!

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