



science  
& technology  
Department:  
Science and Technology  
REPUBLIC OF SOUTH AFRICA

SCIENCE FORUM  
South Africa



# Astronomy for Development

## 9<sup>th</sup> December 2015

### *Moderator*

Mr Kevin Govender, IAU Office of Astronomy for Development, South Africa

### *Panelists*

Dr Stephanie Dobrowolski, Solon Foundation, Sierra Leone

Mr Sivuyile Manxoyi, South African Astronomical Observatory, South Africa

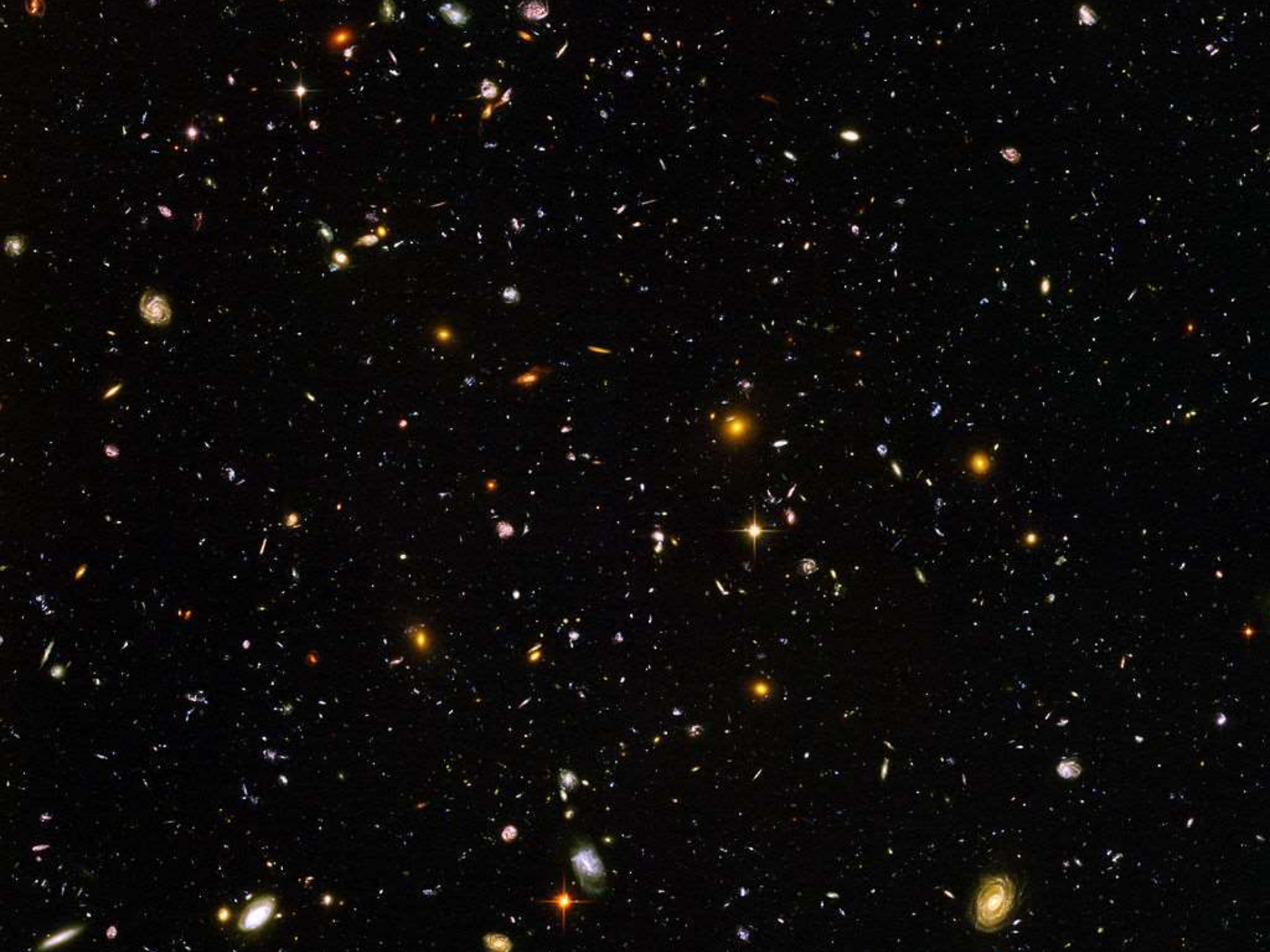
Dr Wanda Diaz-Merced, Office of Astronomy for Development, Puerto Rico

Dr James Chibueze, University of Nigeria, Nigeria

Ms Anita Loots, South African Square Kilometre Array, South Africa

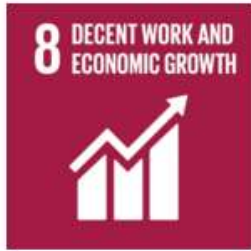
Ms Eli Grant, Office of Astronomy for Development, South Africa

**Twitter: #astro4dev #SFSA2015**





# SUSTAINABLE DEVELOPMENT GOALS

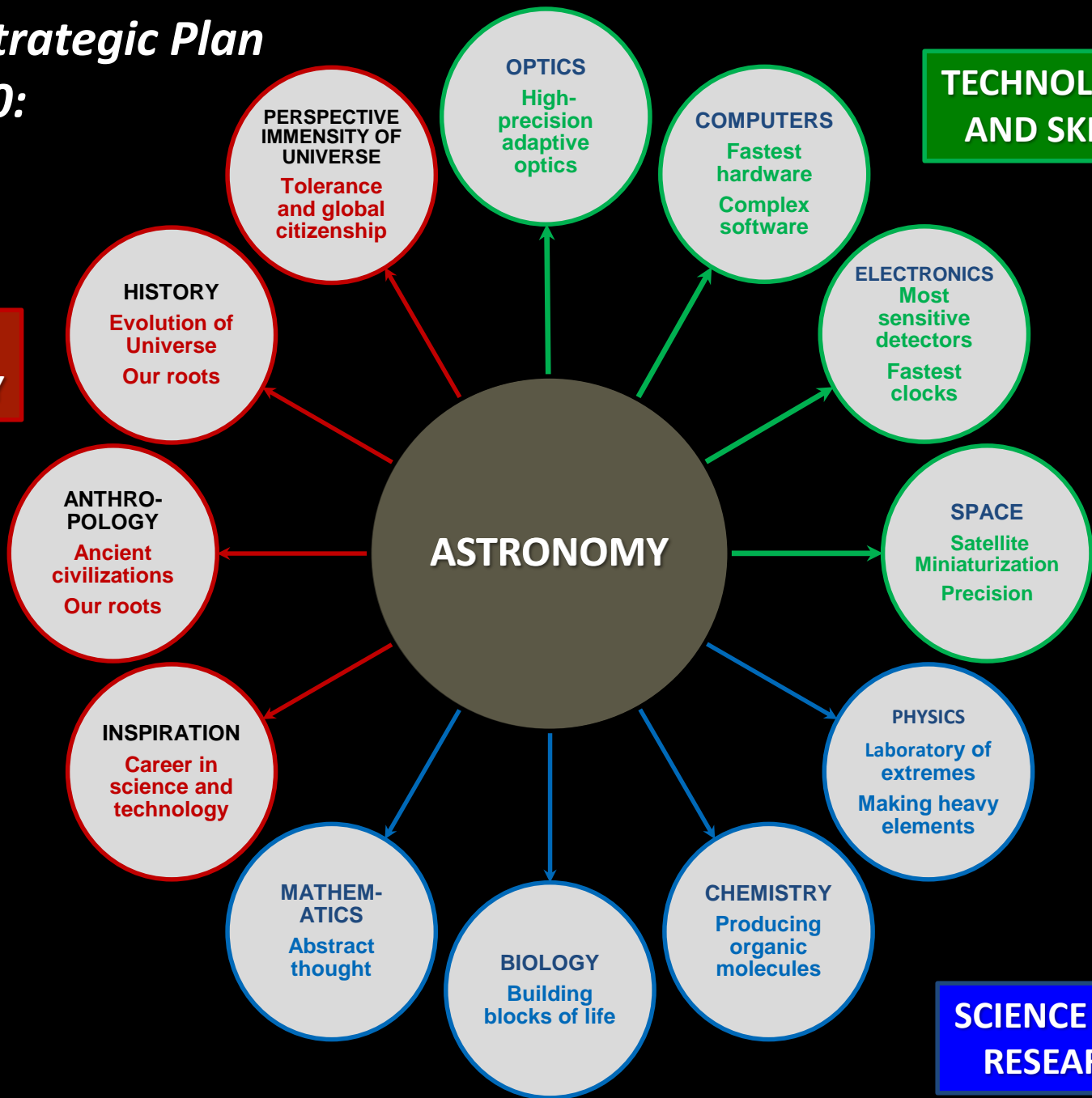


# The IAU Strategic Plan 2010-2020:

## CULTURE AND SOCIETY

## TECHNOLOGY AND SKILLS

## SCIENCE AND RESEARCH



- Dr Stephanie Dobrowolski, Solon Foundation,  
Sierra Leone



10. What do you want to be when you grow up? Scienceits

Why? How will you achieve this?

Because I ones to <sup>no care to</sup> ~~are~~ ~~to~~ mark medicine  
and one to mark Post and I ones  
to no care Studie the moon and star then  
I ones to no care to ~~the~~ go up to Studie ~~the~~ Science  
that Ya say ones to be ~~Scienceits~~ Scienceits







- Mr Sivuyile Manxoyi, South African  
Astronomical Observatory, South Africa







In service teachers



Pre service teachers







[www.impulse.org.za](http://www.impulse.org.za)  
**Impulse**  
Let's keep the momentum  
(School Club Newsletter)

**MEET OUR CLUB MANAGING COMMITTEE**

Our club has a strong and dedicated team of members who are committed to making a difference in our school and community. They are responsible for organizing all our activities and ensuring that we meet our goals.



The club members are actively involved in various projects and initiatives. They work together to raise awareness about important issues and to support our school's values. We are proud of their hard work and dedication.

Our club members are also involved in community service projects. They have organized fundraisers, charity events, and other activities that have helped to make a positive impact in our community. We encourage all our students to join the club and get involved in these important projects.





- Dr Wanda Diaz-Merced, IAU Office of Astronomy for Development, Puerto Rico



- Dr James Chibueze, University of Nigeria, Nigeria

# Radio Astronomy - A Launch Pad

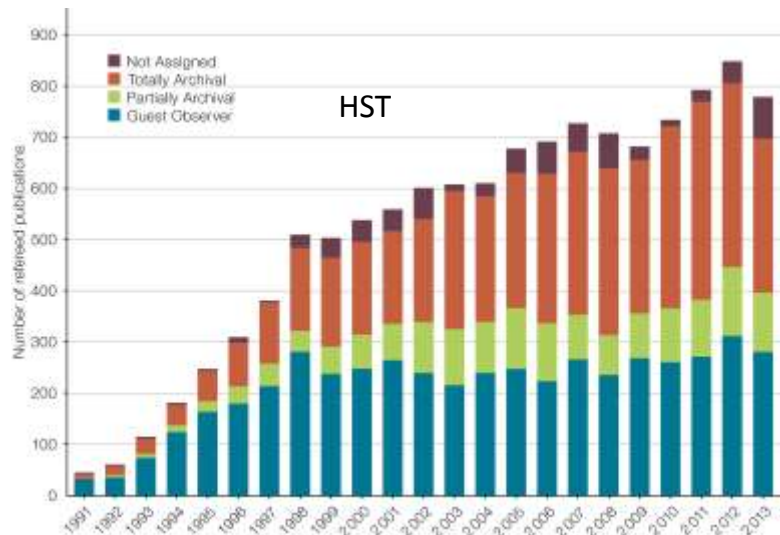
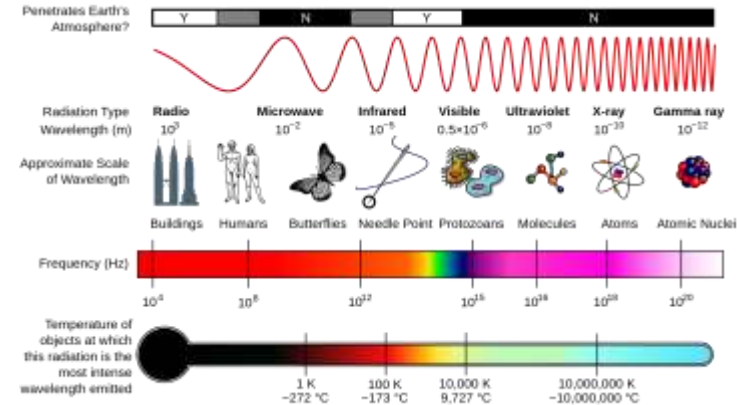
Astronomy is a multi-wavelength science, and drives technological development. e.g. low temp. tech (4 K), computing...

Astronomy facilities are expensive!

Instrument first, then train astronomer?

Train astronomer with existing archival data.

**Archival science not inferior!**



# Ploughing back into West African Astronomy

Astronomy facilities hard to operate in isolation!

Those trained in archival science in Nigeria could play key role in astronomy development in West Africa with the help of the WAROAD.

Africa VLBI Network (AVN)  
Ghana station key! (Anita)



- Ms Anita Loots, South African Square  
Kilometre Array, South Africa

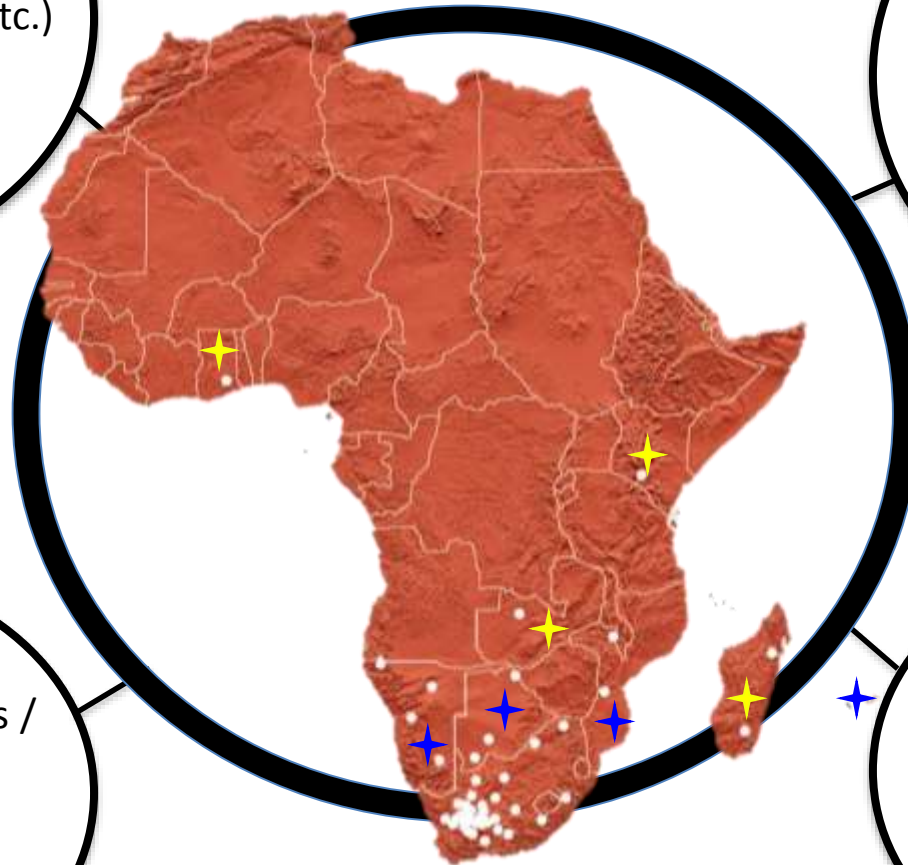
# “Readiness” is not just about telescopes

**Policy Environment & Governance** (government level policy, Institutions, etc.)

**Science Infrastructure** (including radio observatories, high performance computing facilities, etc.)

**(Skilled) people** (academics / researchers / scientists, engineers, technicians, artisans)

**Physical Infrastructure** (including data transport networks, power, roads, etc.)



# Holistic approach – capacity building

## **Observatory Essential Skills**

(hands-on 6 month training of 6 member team from partner country in SA and thereafter during conversion)

## **Short courses not leading to degree / diploma**

(eg short courses (soldering, CAD, FEKO etc.))

**Training for the AVN and towards self-sufficiency in maintenance and operations of AVN stations and participation in SKA2**

## **Tertiary qualification**

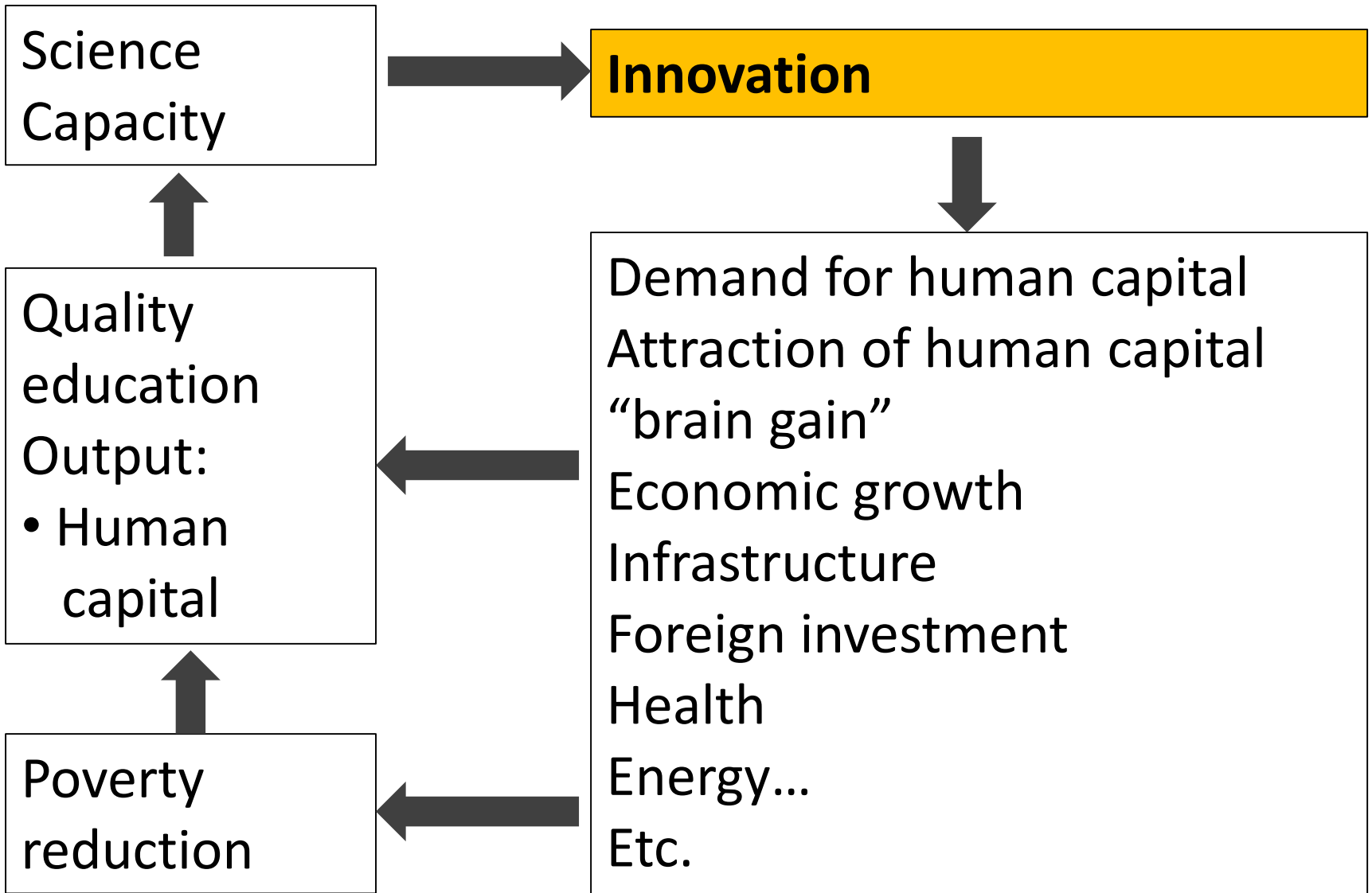
(aimed at ensuring a robust user / research community, incl. scientists, engineers, technicians, etc.)

## **Artisans - trades**

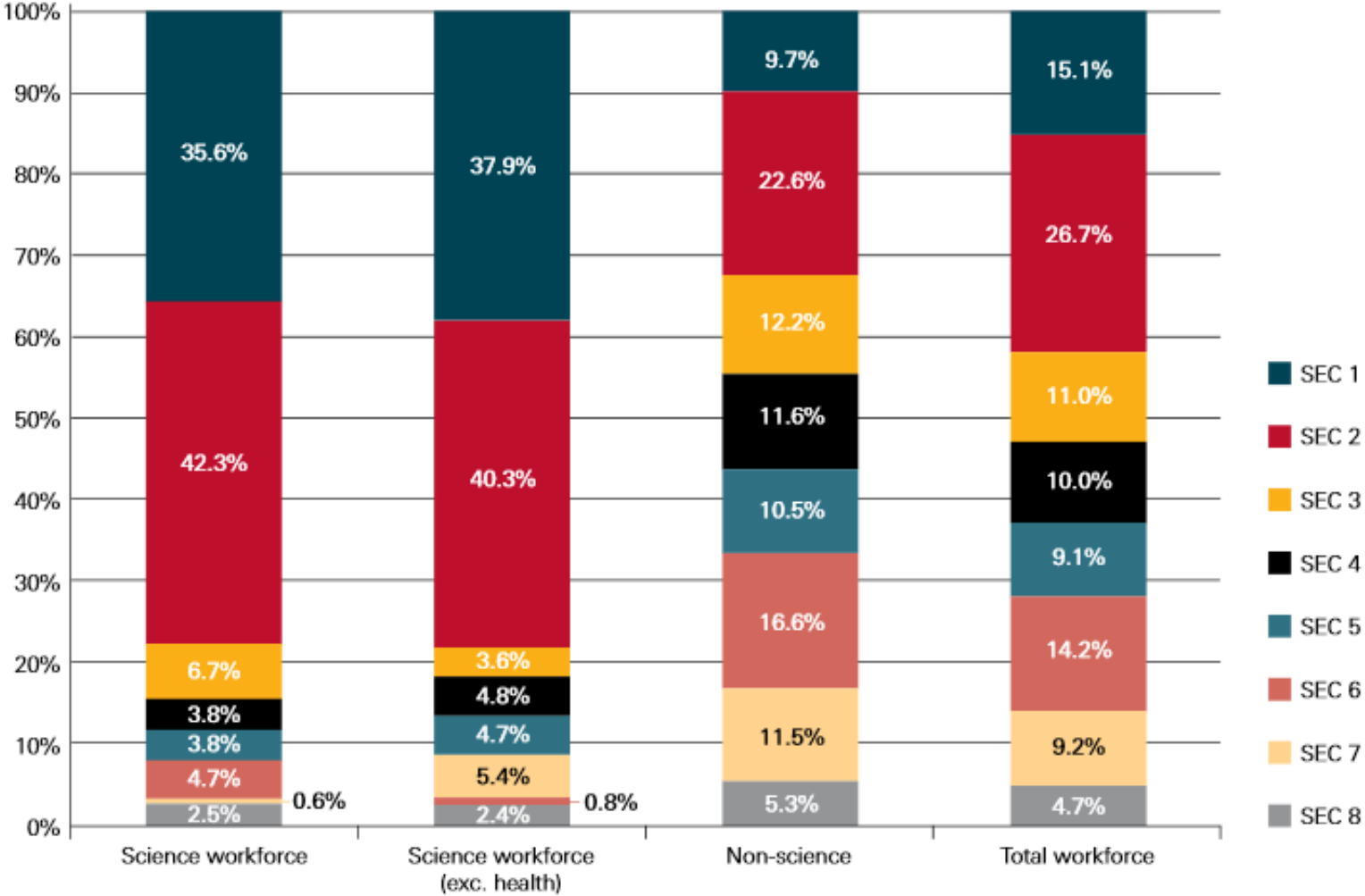
(formal training towards a qualification as an artisans and other tradesmen etc.)



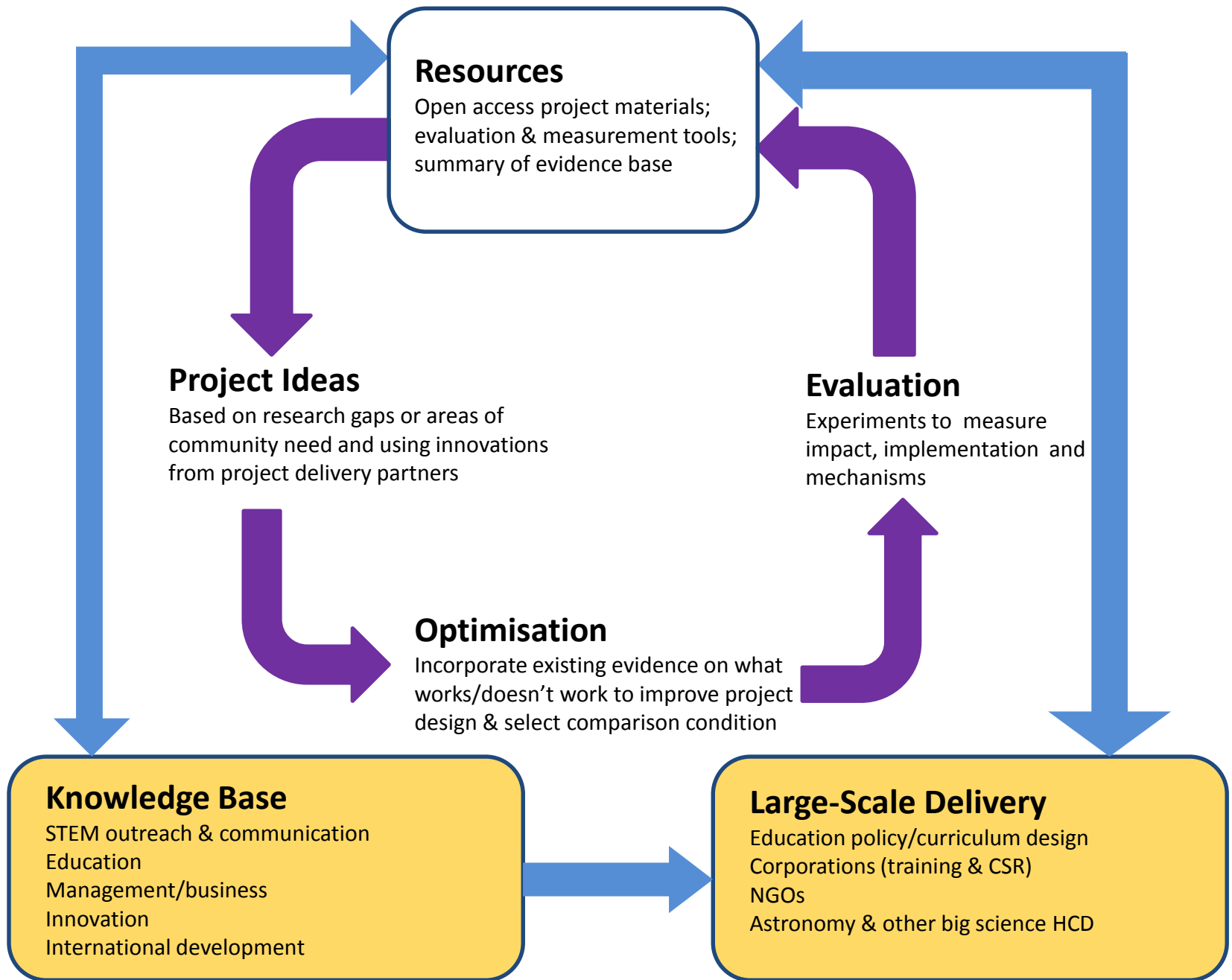
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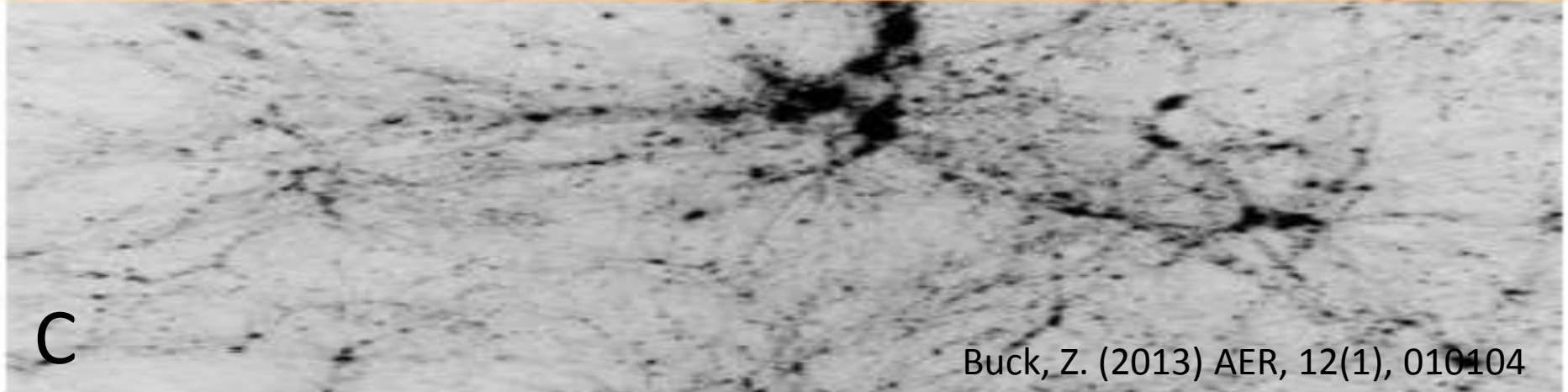
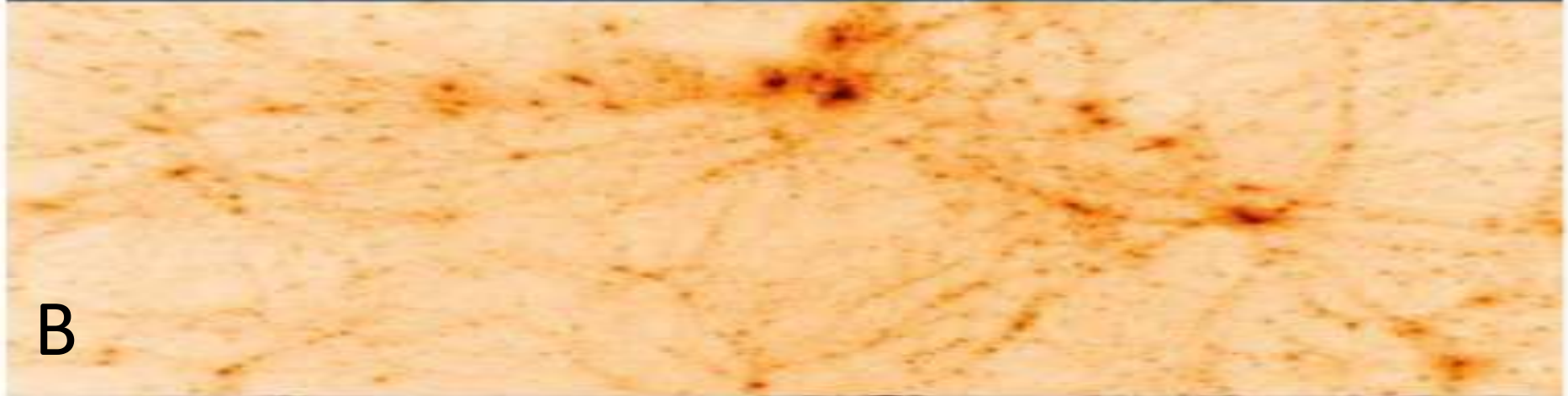
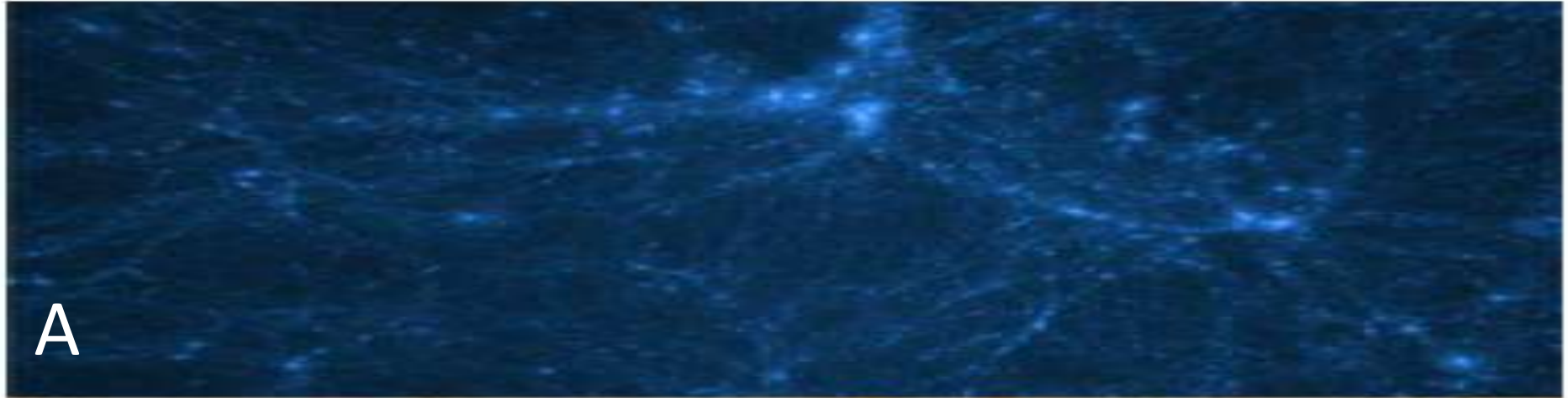


# UK science and total workforce by SES



Source: Point Research Limited (2013) *The diversity of the UK science workforce: Quantitative analysis of the Annual Population Survey*, p. 13







# OAD Regional Offices



**Andean Countries**  
Colombia

**Lusophone**  
Portugal

**South West Asia**  
Armenia

**Arab World/Arabic**  
Jordan

**East Asia/Chinese**  
China

**South East Asia**  
Thailand

**West Africa**  
Nigeria

**East Africa**  
Ethiopia

**Southern Africa**  
Zambia

**OAD**



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Dr Wanda Diaz-Merced, Office of Astronomy for Development ([diazw@mac.com](mailto:diazw@mac.com))

Dr James Chibueze, University of Nigeria ([james.chibueze@gmail.com](mailto:james.chibueze@gmail.com))

Ms Anita Loots, South African Square Kilometre Array ([aloots@ska.ac.za](mailto:aloots@ska.ac.za))

Ms Eli Grant, Office of Astronomy for Development ([eg@astro4dev.org](mailto:eg@astro4dev.org))

Twitter: #astro4dev #SFSA2015



***Continue the conversation:***

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**[@astro4dev](https://twitter.com/astro4dev)**