



SOUTH AFRICAN PRECISION MEDICINE PROGRAMME

EU-AFRICA PERMED STAKEHOLDER MEETING

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Rizwana Mia-

Senior Program Manager-

Precision Medicine

INTRODUCTION TO THE SOUTH AFRICAN MEDICAL RESEARCH COUNCIL (SAMRC)

SAMRC Mission:

- *To improve the nation's health and quality of life by conducting and funding relevant and responsive health research, development, innovation and research translation*

The SAMRC is a public organization established through legislation (SAMRC Act No. 58 of 1991) – located at 6 sites within South Africa

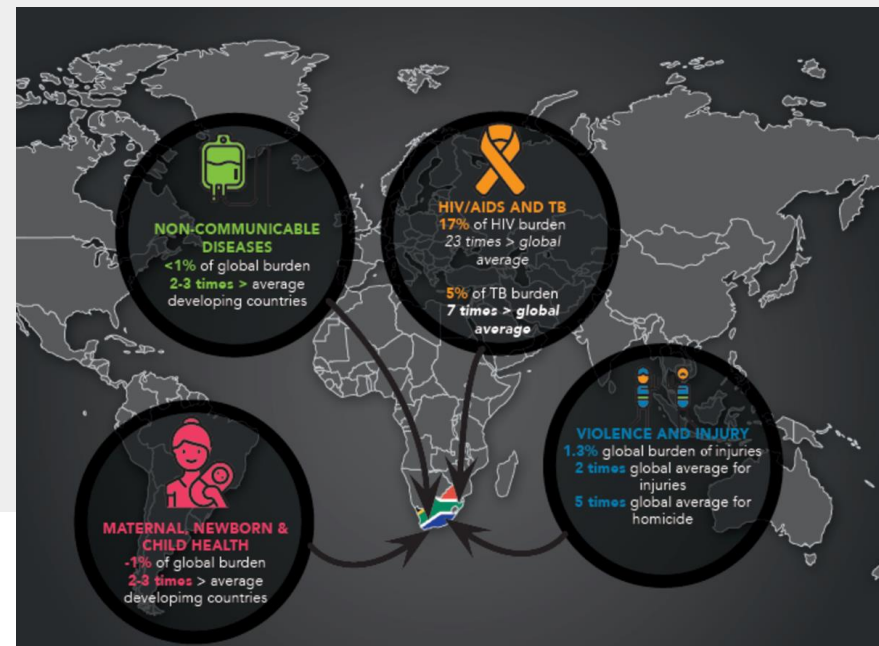
The SAMRC is the largest local funder of health research in Africa

- Total annual revenue in 2020/21 of ZAR 1.17 billion (€ 67,6 million) comprising around 53% government grants, 43% contract income and the remainder other income.
- > 80% (€ 54 million) of this was invested in external grants, innovation and career awards
- <20% was spent on administration

A key focus is the translation of research into new or improved policies, practices, processes and products to ensure health impact

WHY DID WE START THIS PROGRAM?

- The Precision Medicine Agenda is aligned to the mission of the SAMRC
- South Africa has a Quadruple Disease burden
- 2016- we started looking at focused funding toward PM in South Africa
- Pilot Genome Program (The Southern African Human Genome Program) was closing off the 1st phase
- Initiated a Precision Medicine Think Tank under the National Department of Science and Innovation
- Objectives:
- Building a research strategy and create the desired pipeline that could service our precision medicine efforts in a developing country system
- Understand our landscape and plot a roadmap
- Non-Communicable Disease focus



SAMPLES/ BIOBANKING

**Genomics
/Proteomics**

Data Science

Health Systems

SKILLED PEOPLE

INFRASTRUCTURE

ETHICS & REGULATION/ POLICY

SOUTH AFRICAN PRECISION MEDICINE ECOSYSTEM



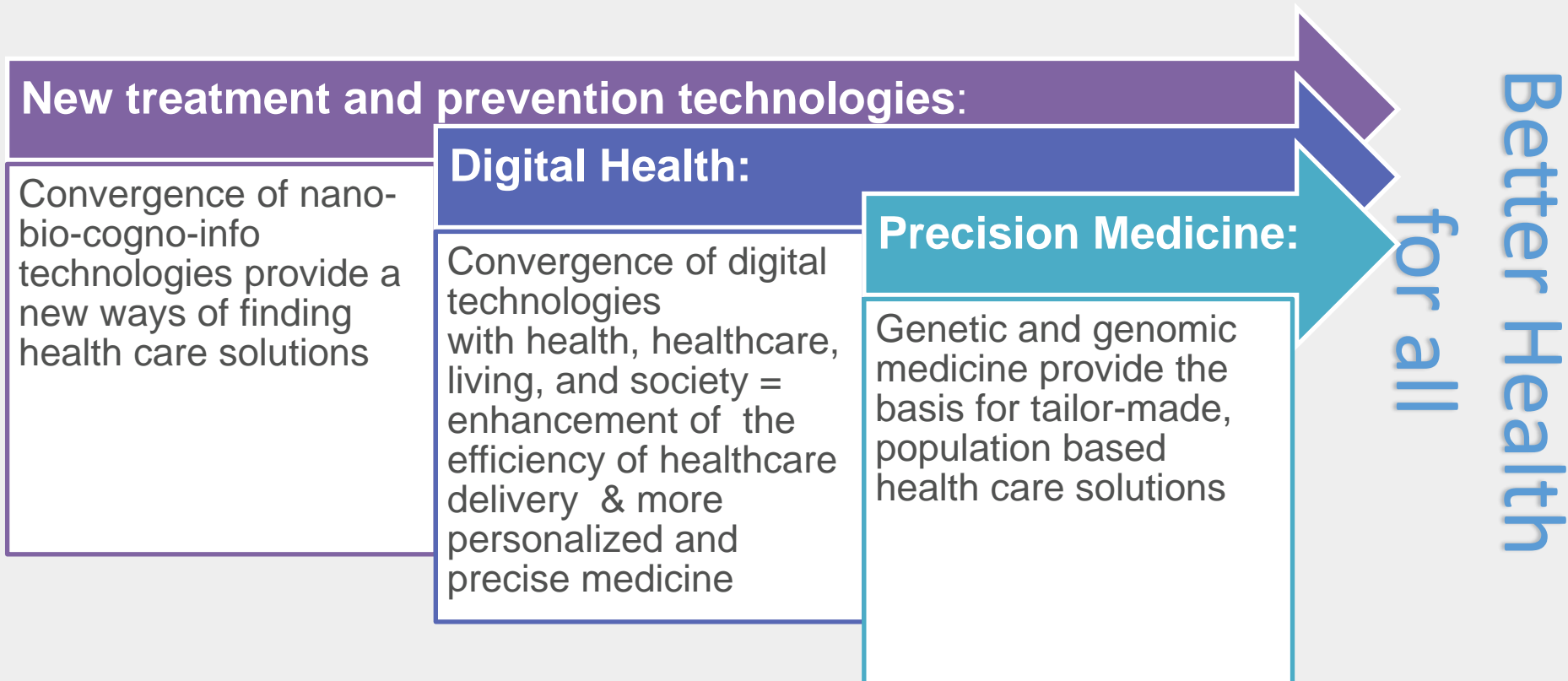
The Precision Medicine Strategy

➤ SAMRC STRATEGIC PARTNERSHIPS

➤ Address the GAPS

- Creating momentum and skills in Genomic Science to drive precision medicine
- Empowering the local ecosystem to create and innovate new knowledge on the African Genome
- Strengthening capacity development to feed into down stream economic development to innovate new tools and solutions for the healthcare system
- Digital Health – toward data driven Healthcare
- Pharmacogenomics, genomics and genome mapping
- Unpacking Africa's genetic diversity
- Disease areas we focus on –
 - NCDs- Cancer, Diabetes, Cardiovascular disease and Diabetes.
 - Infectious diseases- COVID, HIV and TB

THE COUNTRY'S HEALTH INNOVATION MAIN FOCI

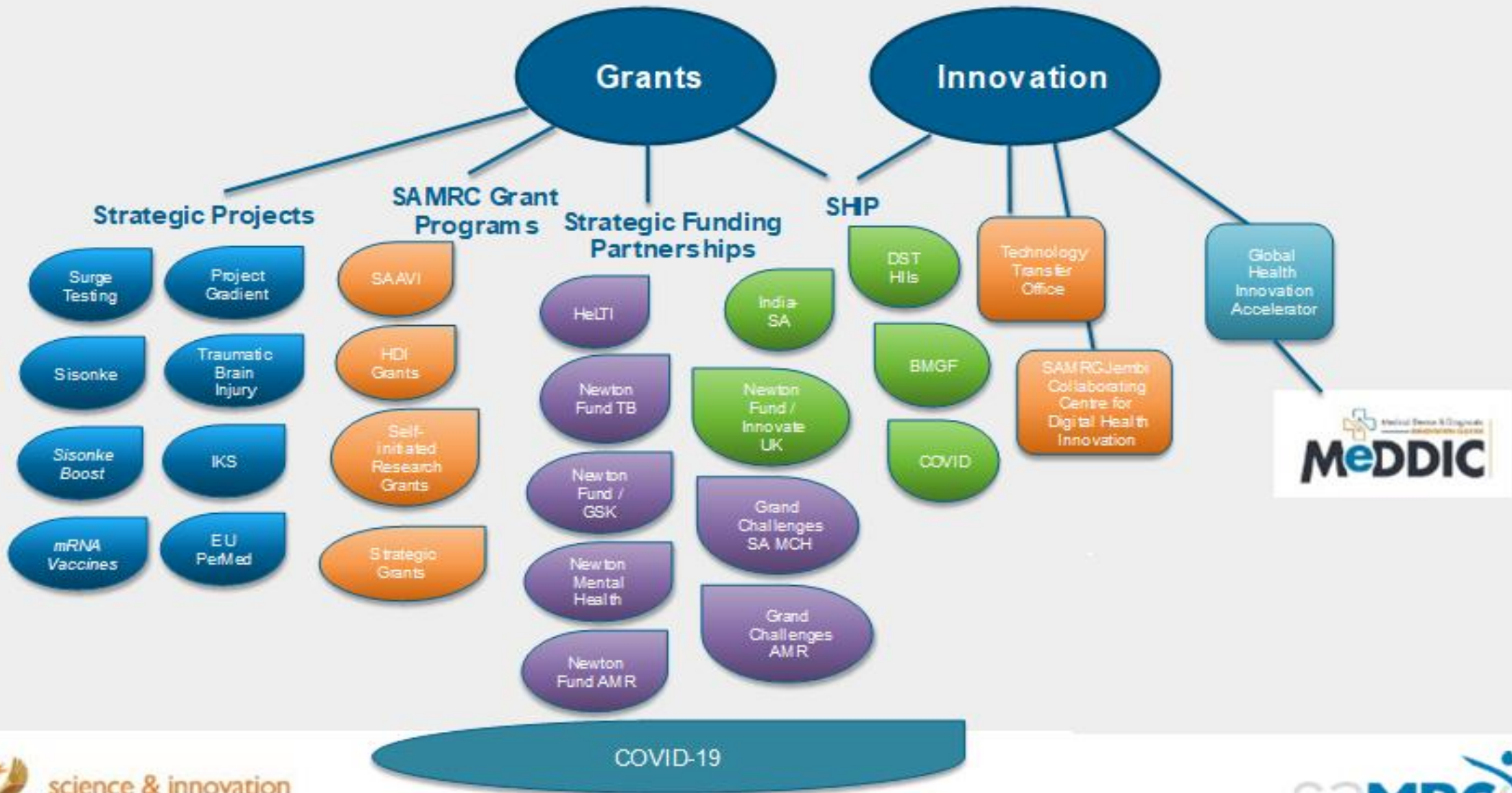


This was Adapted from the Innovation Decal Plan (10 year plan)
Slide -curtesy of the DSI Health Innovation Directorate

HOW DO WE INVEST?

- **We Use a leverage funding partnership model**
- **We receive a Parliamentary Grant each year and report to the National Department of Health and...**
- **Strategic Health Innovation Partnerships [SHIP]: A partnership with the Department of Science and Innovation** to essentially focus on “product development” within the health innovation value chain
 - Funds from DSI and DOH to fund health technologies specifically addressing product development and product development research
 - SHIP strategy is based on the global Product Development Partnership (PDP) model, but applied in the African context.

PARTNERSHIPS ACROSS THE INNOVATION VALUE CHAIN

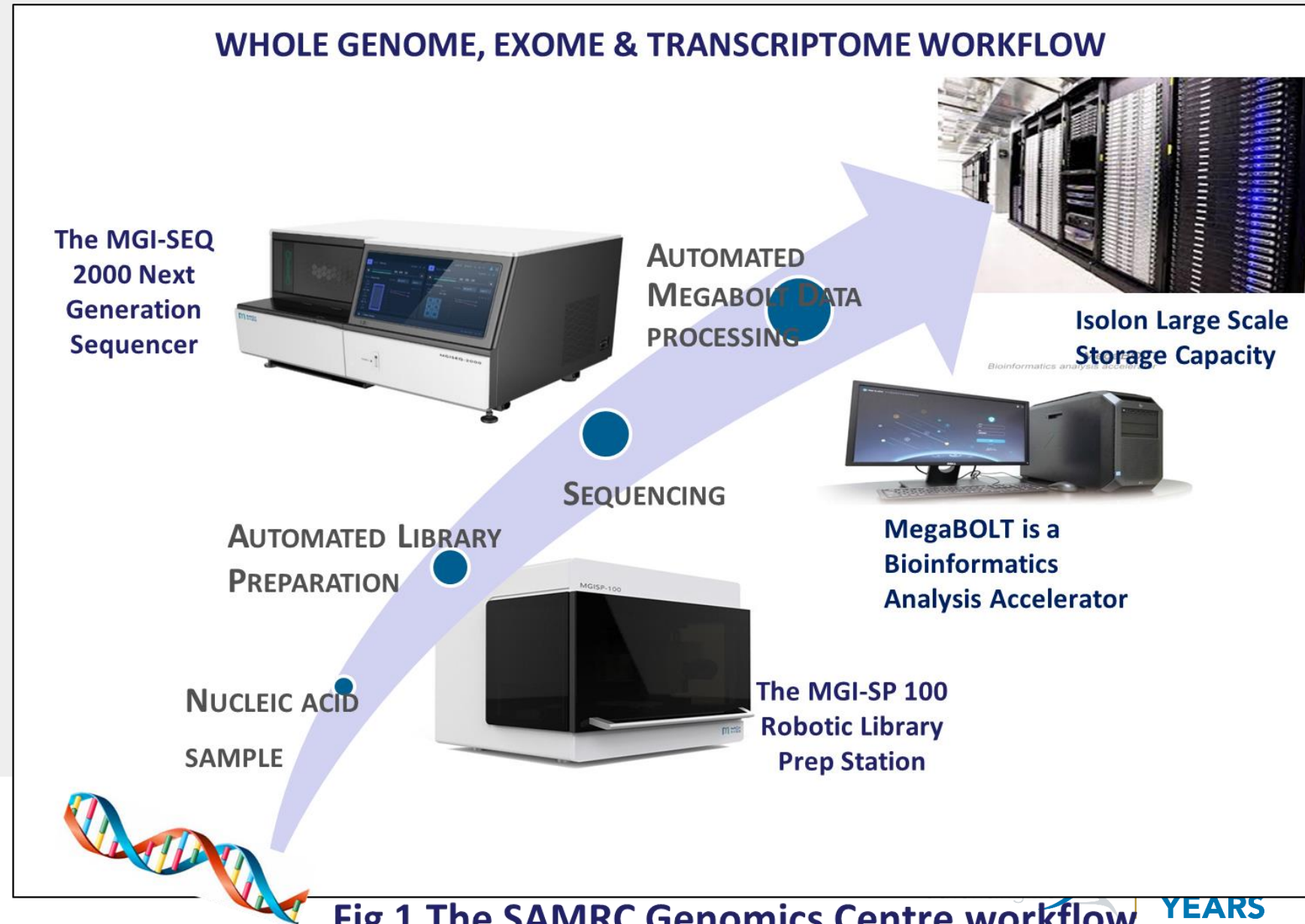


TOTAL INVESTMENT IN PM /GENOMICS = ZAR 210 MILLION (€12,3M) & INCREASING

- 2016-Newton Fund GSK-UKMRC NCD Research Program – R90 million (€ 5,2 million)
- 2016- DSI - Precision Medicine Platform- R 12 million (€ 700K)
- 2017-Innovate UK- Newton –SHIP Partnership – R24 million (€ 1,4 m) projects in product development = 2 products that are moving into validation phase and local manufacturing
- 2018- SAMRC-SHIP-BGI Partnership- R 46, 6 million (€ 2,7m)
 - Lab launched in July 2019
 - Pilot project addressing innate immune control of HIV
- 2019- SHIP- DIPLOMICS Partnership – R 30 million (€ 1,7m)
 - 10 x pharmacogenomics projects addressing treatment failure and
 - 1 project -host characteristics of COVID 19 in the S. African Population
- 2020- NGS South Africa COVID-19 Genomics Surveillance – R25 million (€ 1,2 m)
- 2021- Part of EUI-Africa PerMed Project Consortium
 - ERA-PerMed Joint Technical Call 2021- “Personalized Prevention” (€ 24 m)
 - Currently running this call for applications with 32 funding partners

SAMRC-DSI GENOMICS CENTRE

- First High through-put sequencing facility in Africa
- 6 HVAC controlled cleanroom laboratories with dedicated RNA and DNA workflows
- SA cost is around ZAR 33 million
- Currently housing MGI-technology, DNA nanoball loader and MGIrobotic library prep station – BGI/MGI Cost is around ZAR 7,6 million
- Pilot Project =ZAR 6.9 million



Portfolio Overview

- Overall portfolio consists of projects that aim to develop products that will one day be used in our healthcare system, -
 - These are set to enable advanced and precise diagnostics
 - whilst others are unpacking our population genomic diversity that contributes to treatment failure- Pharmacogenomics
 - And we want to grow our portfolio in treatment
 - Build prevention personalized medicine approaches

PORTFOLIO FOCUS AREA

<u>Focus Area</u>	<u>HIV</u>	<u>TB</u>	<u>NCD</u>	<u>MCH</u>	<u>AMR</u>	<u>Malaria</u>	<u>COVID-19</u>
<u>Treatment</u>	✓	✓	✓	✓		✓	✓
<u>Diagnosis</u>	✓	✓	✓	✓	✓		✓
<u>Prevention</u>	✓	✓	✓	✓	✓		✓
<u>Digital Health</u>	✓	✓	✓	✓	✓	✓	✓
<u>Precision Medicine</u>	✓		✓	✓			✓

Outside of our investment portfolio We have a new area of tailored nuclear medicine being supported by the EU partnership programs

CONCLUSION

- The partnership model has created great momentum for PM and Genomics Science in South Africa
- We synergize with all programs that support PM
- Partnership with ERA-PerMed JTC 2022 is currently underway
- EU-Africa PerMed Project will help us understand the PM landscape better and build links with Europe to develop initiatives and build our ecosystem toward Precision/ Personalized Medicine.

THANK YOU VERY MUCH

Rizwana.Mia@mrc.ac.za

www.samrc.ac.za