

# Switzerland and Africa – a study in synergy and symbiosis

Ed Constable, AIT-SASBI Spring Conference, 22<sup>nd</sup> February 2023



# Why me?



Former Vice-President of University of Basel

Long involvement with Swiss-African collaboration

Commitment to Swiss-African success

... and I happened to be in South Africa today

# A slide from 2008

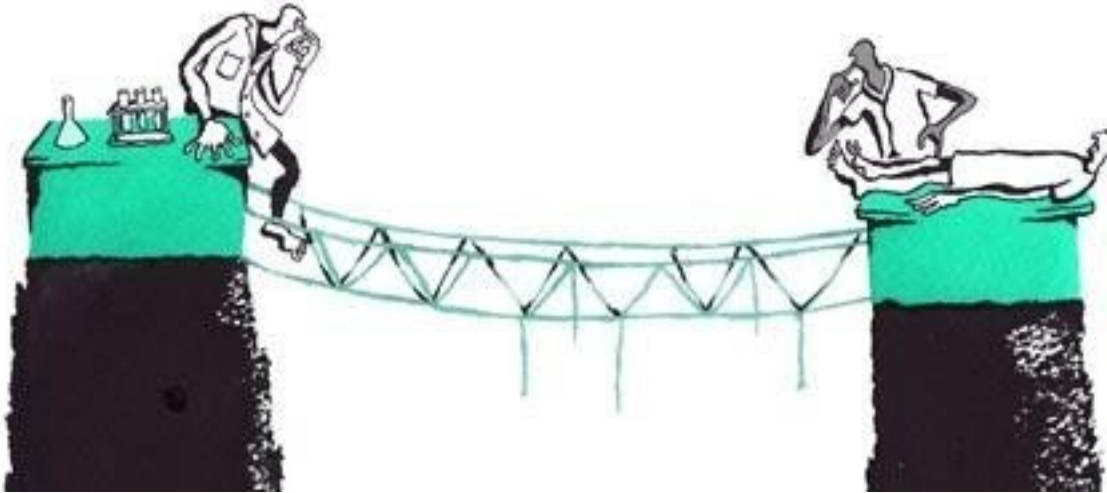


Image from  
Butler, D. Translational research: Crossing the valley of death.  
*Nature* **453**, 840–842 (2008). <https://doi.org/10.1038/453840a>

This was our view of the situation in Switzerland in 2008

- Motivated workers and good innovative results
- Lack of translation “bench to bedside” or “laboratory to marketplace”
- Lack of contact and understanding between the two sides of the valley
- Lack of knowledge of how to build the bridge

# Time passes 2003 – 2023

## Did we learn anything in Switzerland?



# Anything familiar here?

- Researchers had good ideas and results but unrealistic expectations
- Researchers had no commercial experience and very rarely made good CEOs
- Industry partners often innovation averse and conservative
- Poorly established translation pathways (finance, training etc.)
- Researchers and industry very risk averse – a Swiss problem
- Unreasonable expectations regarding IP from all sides
- Unreasonable financial expectations from Universities and researchers
- Unreasonable pressure from Universities to monetize invention and innovation
- NIH-Syndrome



# The partnership environment



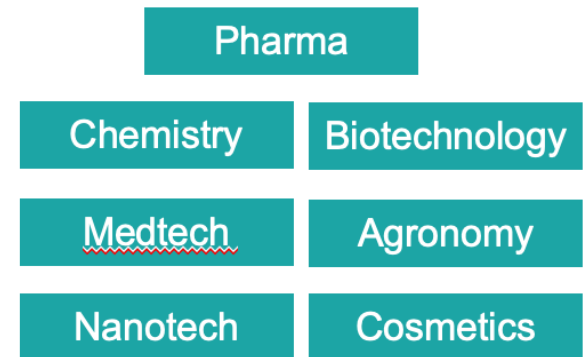
Why Basel Area?

Why Switzerland?



# Why Basel Area– 1

- >700 Life science companies
- >200 Research institutes
- ~32000 Employees in the life science industry  
1st in Switzerland, 3rd in Europe
- 15% Local GDP spent on R&D  
(Shanghai 4.2%, Singapore 1.9% 2022 figures)
- 260 Life science patents per million inhabitants  
1st place worldwide



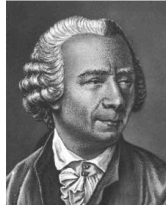
# Why Basel Area– 2



Oldest university in Switzerland, founded in 1460



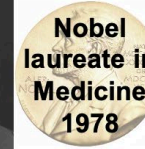
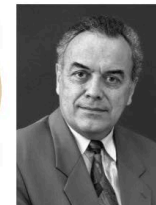
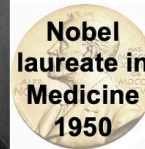
**16th Century**  
Paracelsus: physician,  
alchemist, philosopher



**18th Century**  
Leonhard Euler:  
mathematician



**20th Century**  
Tadeusz Reichstein:  
chemist



**20th Century**  
Werner Arber:  
molecular biologist



Swiss Tropical and Public Health Institute  
or Swiss TPH

University of Basel and Swiss TPH  
are the Swiss leading house for activities  
with sub-Saharan Africa



# Why Basel? – The history



**19<sup>th</sup> Century:** Basel Mission

(esp: Herrnhuter Mission from Moravia)  
(Mission 21; today hosted at: Hotel Odelya)  
Christian missionaries & doctors for tropical medicine

**1943** The Swiss Tropical Institute (STI) was created





# The Swiss – African Cooperation

## **2000:** Swiss Government intensifies cooperation outside Europe

No central funding agencies like DAAD, British Council

Individual universities asked to act as Leading House for BRICS – countries:

University of Basel (SwissTPH) – Leading House for South Africa

## **2007:** Swiss - South African Joint Research Program (SSAJRP) signed and delivered on a mandate to promote scientific and technological collaboration between Switzerland and South Africa/Sub-Saharan Africa.



# The Swiss – African Cooperation

**2007 – 2011**

**Switzerland – South Africa**

Partners CH: SER now SERI

Partners SA: DST now DSI

**2011 – 2012**

**Bridging year**

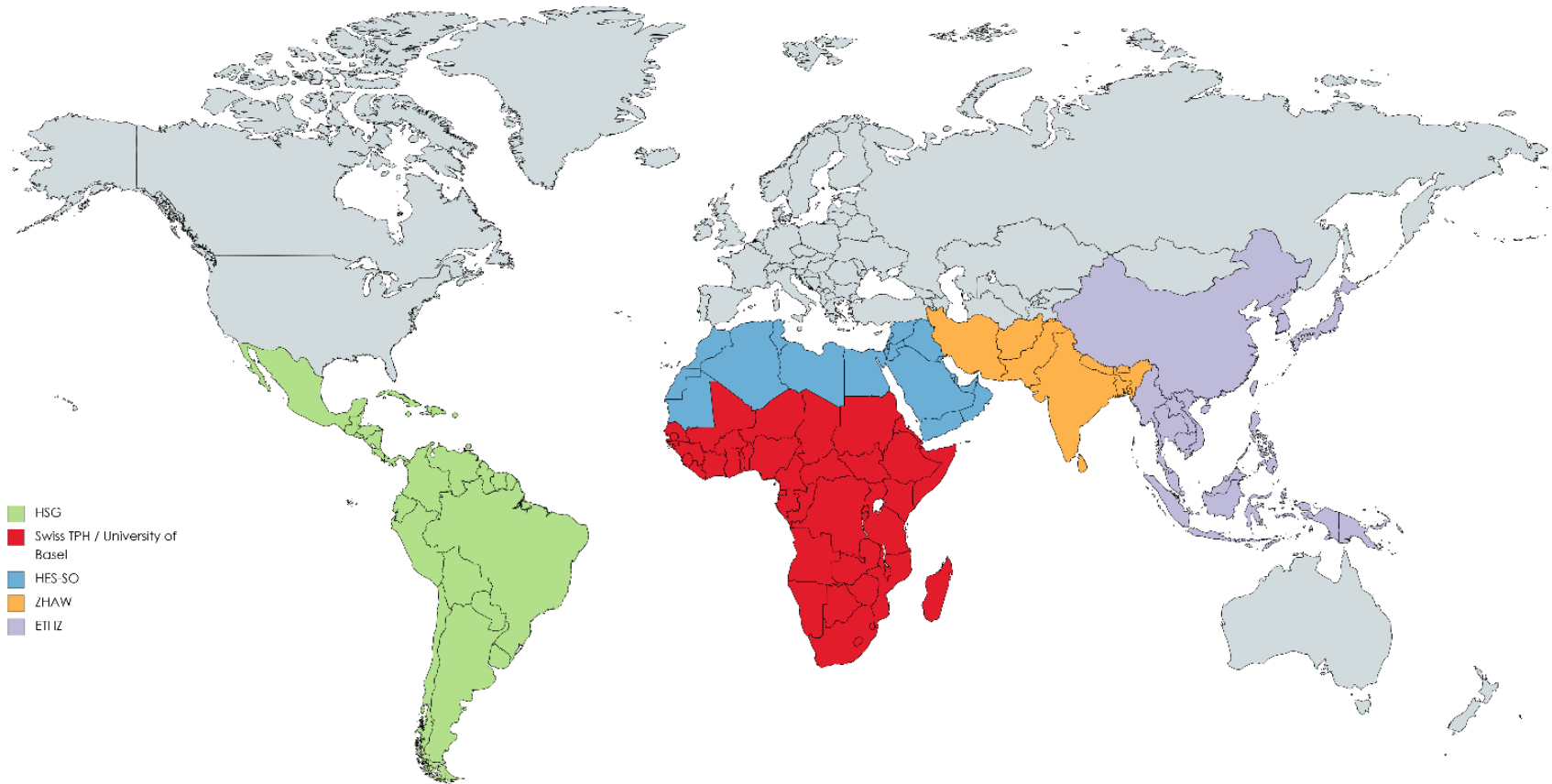
**2012 – 2016**

Mandate enlarged to all countries in Sub-Saharan Africa with important scientific potential

Implementation:

- Targets: Health, Nanosciences, Social Sciences and Humanities
- Scaling: SNSF partnering with NRF

# Leading House Africa: Universität Basel & Swiss Tropical & Public Health Institute



- HSG
- Swiss TPH / University of Basel
- HES-SO
- ZHAW
- EIIIZ

Created with mapchart.net



# The Swiss – African Cooperation

- Large funding instruments for research cooperation: SNSF
- Kick-start instruments, mobility grants and research partnership grants managed by Leading Houses
- From the beginning: development of “**innovation track**”:

# Leading House Basel - Activity in South Africa



The Swiss-South African Business Development programme, SSABDP provides a unique, high-quality learning opportunity for start-ups and entrepreneurs.



# Leading House Basel - Activities in Sub-Saharan Africa

## Africa Market Discovery Camp for Swiss Startups



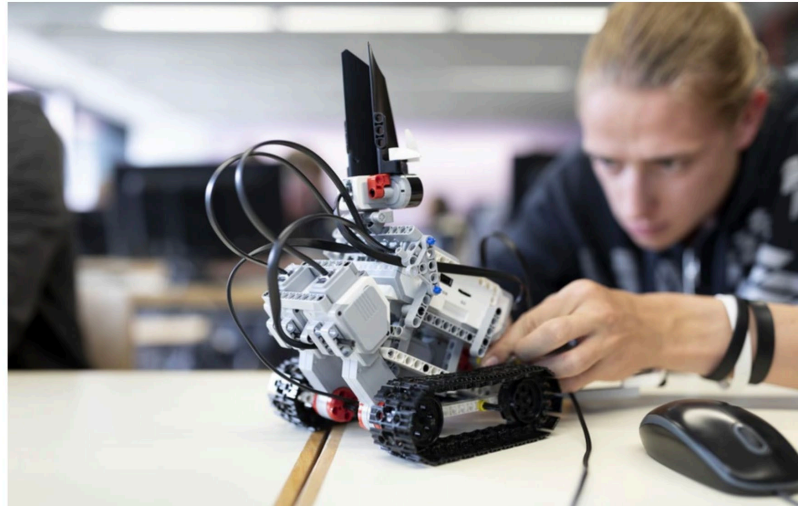
## Advanced Startup Training for Sub-Saharan African Startups



# Why Switzerland?

September 29, 2022

## Swiss tops global innovation ranking again



It's the 12th year in a row that Switzerland has topped WIPO's [Global Innovation Index](#), which is based on dozens of indicators in over 130 countries. The report examines areas such as patents, advanced technology and the complexity of production and exports.

According to the Keystone-SDA news agency, a WIPO official said the combination of strong research, the ability to finance innovation and the rapid application of private sector technology in economic markets were factors of the Swiss success.

# Why Switzerland?

## Global Innovation Index 2021

Tracking Innovation through the COVID-19 Crisis

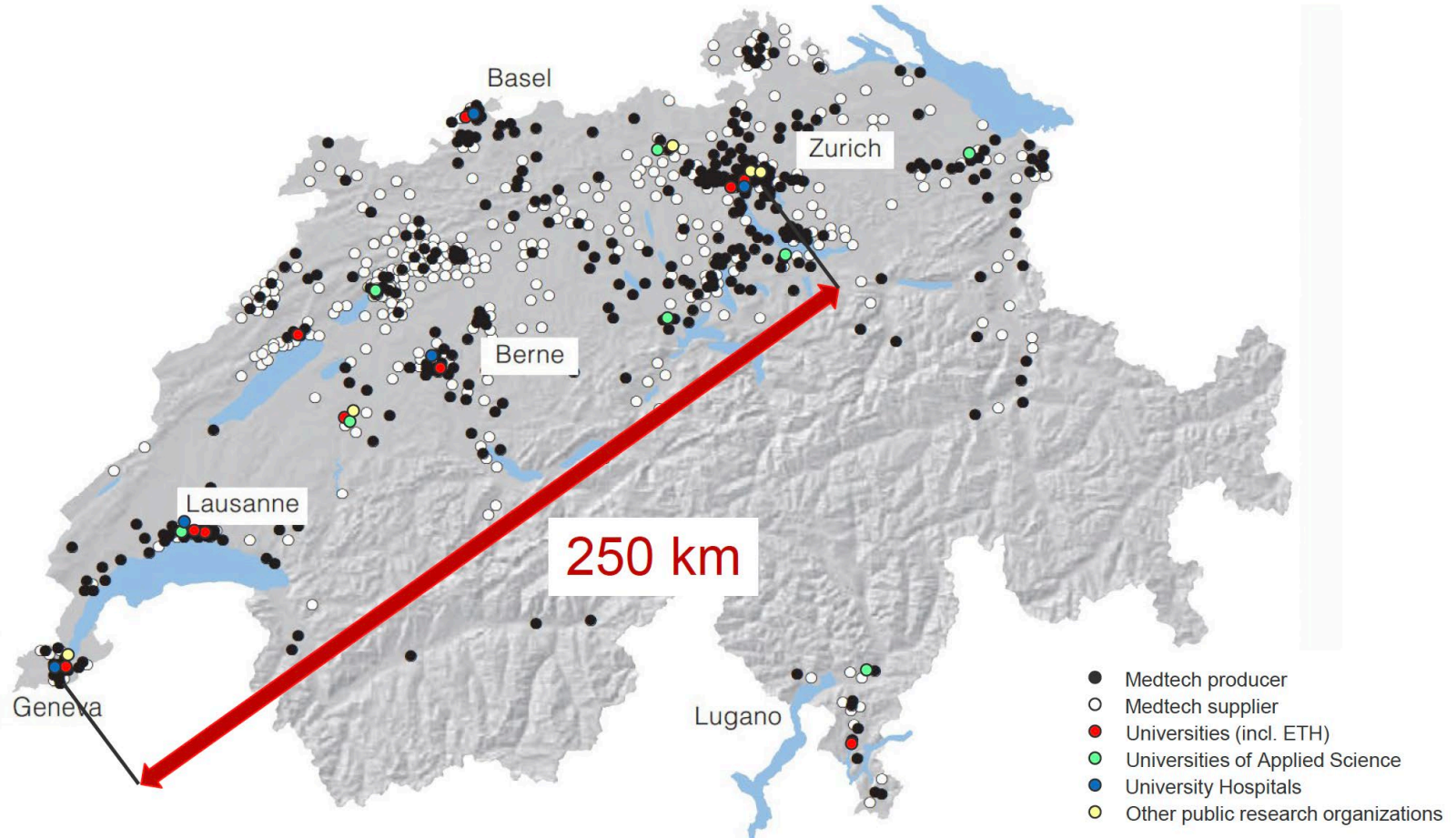


Top three innovation economies by income group

High-income	Upper middle-income	Lower middle-income	Low-income
1. Switzerland 2. Sweden 3. United States of America	1. China 2. Bulgaria ↑ 3. Malaysia ↓	1. Viet Nam 2. India ↑ 3. Ukraine ↓	1. Rwanda ↑ 2. Tajikistan ☆ 3. Malawi ☆

# Why Switzerland?

## Clustered R&D (example CH MedTech Industry)





# The players! ... and lots of initials

- University of Basel / SwissTPH
- State Secretariat for Education, Research and Innovation (SERI)
- Swiss Commission for Research Cooperation with Developing Countries (KFPE)
- Swiss National Science Foundation (SNSF)
- State Secretariat for Economic Affairs (SECO)
- Swiss Development Cooperation (SDC)
- Swiss Innovation Agency (innosuisse)
- Switzerland Global Enterprise (S-GE)
- Swiss African Business Circle (SABC)
- Venturelab
- Department for Science and Innovation (DSI)
- South African Technology and Innovation Agency (TIA)
- Universities South Africa (USAf)
- African Academy of Sciences (AAS)
- Afrilabs
- East African Community
- Moi University and its Center for Entrepreneurship
- University of Rwanda and its Center for Entrepreneurship
- The University of Ibadan and its Center for Entrepreneurship
- The University of Nigeria in Nsukka (Roar Nigeria Impact Hub)
- The University of Ghana
- The University of Mines and Technology (UMT) in Ghana

# Don't try to do it yourself

- Universities rarely have the capacity or know-how to utilise their IP
- Individual universities typically lack the critical mass to establish a viable IP and innovation management centre

## → Consortia

Benefits: **Critical mass**

**Realistic evaluation and advice**

**Cost savings**

**Full service**

**Specialist legal and due-diligence capacity**

# Don't try to do it yourself

**unitectra**

Technologietransfer der Universitäten  
Basel, Bern und Zürich

**swiTT**   
swiss technology transfer association

- > not-for-profit incorporated company
- > fully owned by Universities of Basel, Bern and Zürich
- > since 1999





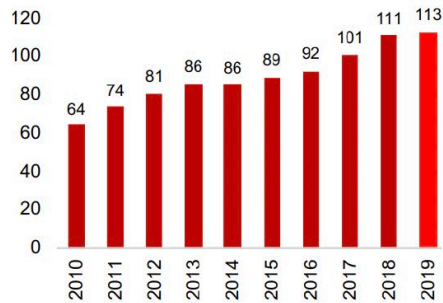
# Don't try to do it yourself



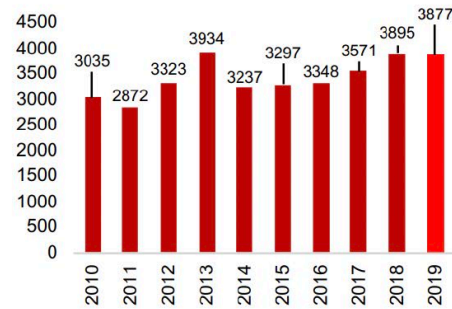
Technologietransfer der Universitäten  
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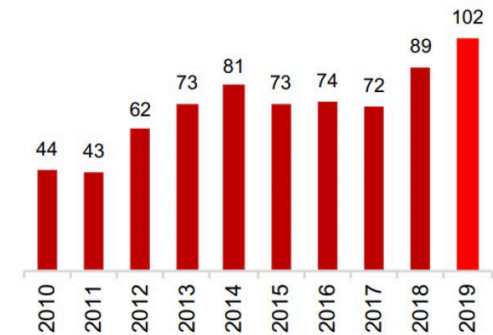
Full Time Equivalents (total)



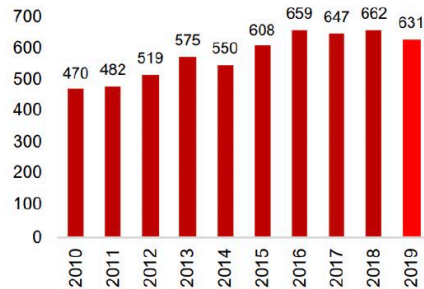
Research Contracts (total)



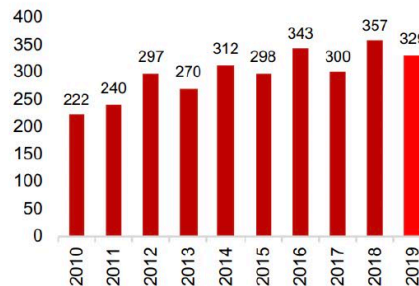
Start-Ups (total)



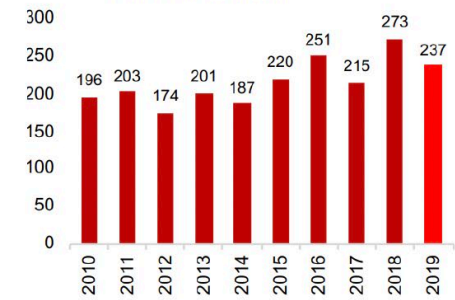
Invention Disclosures (total)



Patent Applications (total)



License Contracts (total)



# Don't try to do it yourself



## Commercialization of Research Results

- Evaluation, commercialization strategy
- IP/Patents protection and management
- Technology marketing
- Proof-of-Concept financing
- Licensing (existing companies, Spin-off's)

## Research Collaborations

- Drafting and negotiating research agreements
- Drafting and negotiating other technology transfer contracts (e.g. material transfer agreements)
- Assure quality of contracts

# STELLA – back to Basel – a life science consortium

STELLA is a collaborative platform that aims to bring together diverse stakeholders, to jointly apply innovative (digital) solutions to health systems challenges



UiO : HISP Centre  
University of Oslo



Swiss TPH  
Swiss Tropical and Public Health Institute



University  
of Basel



NOVARTIS

## Why?

To tackle supply chain inefficiencies in health sector, by improving access to **real-time health and logistics data**.

## How?

Integrating **logistics** components into **District Health Information Software (DHIS2)**, the largest open-source, web-based health information management system in 70+ countries, developed by University of Oslo.

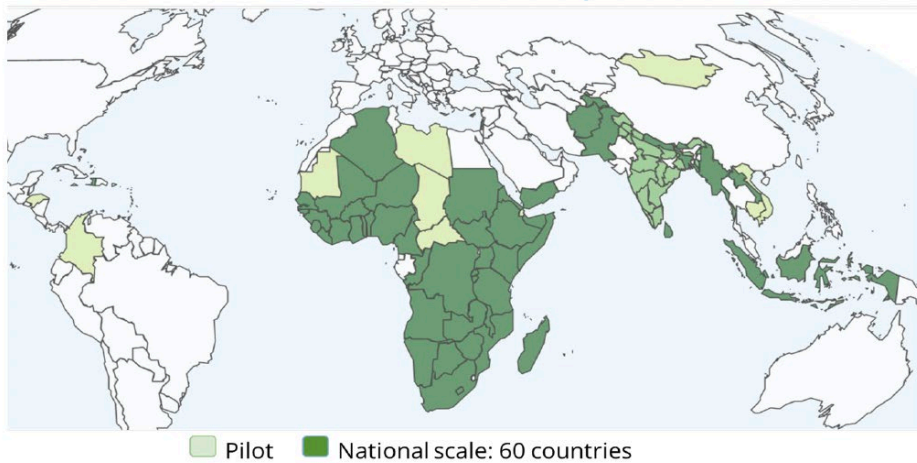
## What?

Key focus areas

1. Developing and validating DHIS2 **disease metadata packages** (MDPs) for malaria (2021), chagas, sickle-cell disease and leprosy in collaboration with WHO
2. 2022: Facilitating development of **advanced logistics|forecasting** in collaboration with eLMIS partners (Logistics Management Information System)

# STELLA – a life science consortium

DHIS2 Global Adoption:



Mali



Burundi



Malawi



Sudan

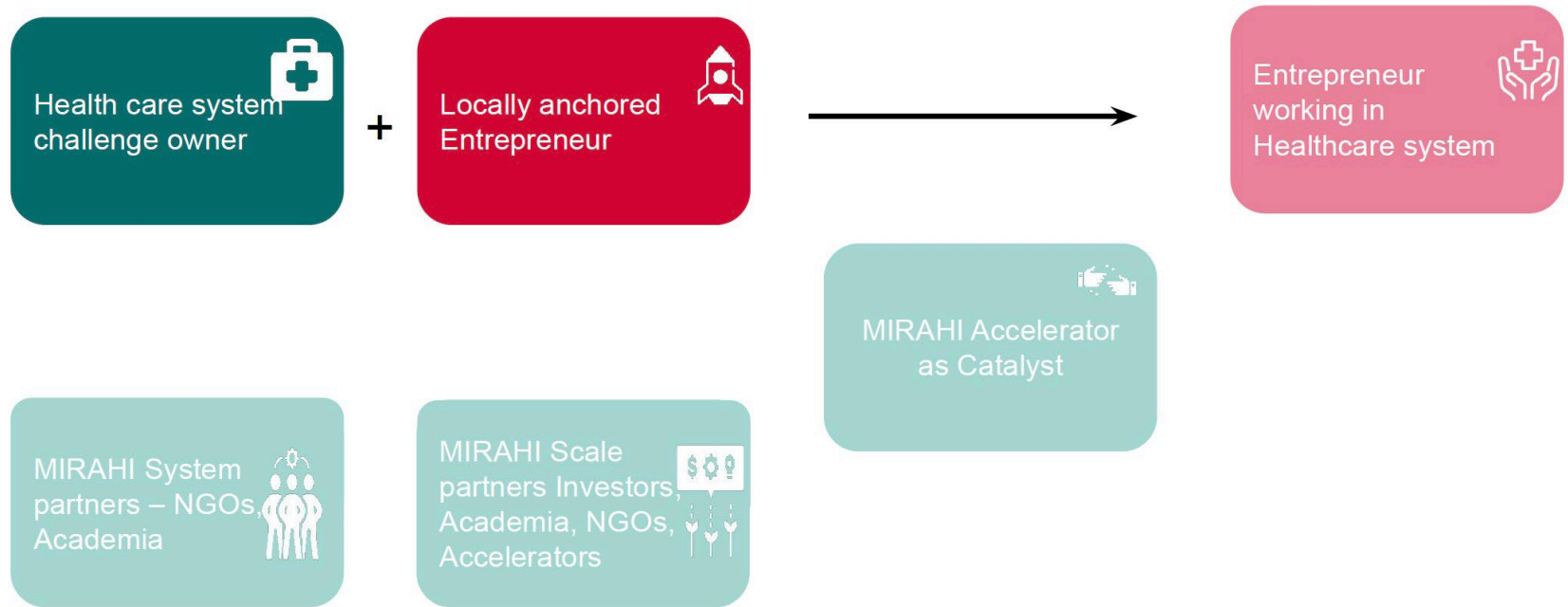


Nigeria

Global Health and Industry	Data Analytics	Academia



# STELLA – MIHARI



# STELLA – MIHARI

## *Actions*

Supported a cohort of 5 ventures addressing the challenge of Equitable, efficient and effective distribution of vaccines and in Sub-Saharan Africa through

- **Connections to innovation ecosystem partners**
  - GDHUB (University of Geneva)
  - WHO
  - Swiss TPH
  - Novartis
  - DHIS2
  - WITS/Tshimologong
  - SASBI
- **Insights into digital health infrastructure in sub-Saharan Africa and opportunities for scale**
- **Introduction to innovation partners** (e.g; Kapsule and Helpmum to Healthtech Hub Africa)
- **Funding** (enabling a selected startup to show value in Healthcare innovation ecosystem in Rwanda)
- **Increased understanding and prioritization of challenges for “sciencepreneurs”**

## *Cohort*

Solution	Country	Summary
GRICD	Nigeria	Provides connected coolbox and software to monitor vaccine and medicine distribution.
Helpmum	Nigeria	Infant Vaccination Tracker - In the experience of Helpmum, there are 4 bottlenecks preventing vaccination – distance to vaccination centre vs income, literacy, waiting times at vaccination centre and stockouts at vaccination centre. Helpmum would like to work on the last two bottlenecks.
The Big 3 (IHI)	Tanzania	Project from Ifakara Health Institute on improved data usage
Cold Trace (Nexleaf)	United States	Nexleaf is a nonprofit technology company. Through its vaccine programme, Nexleaf focuses on strengthening the vaccine supply chain by helping countries to identify the weakest points in their cold chain and customize improved routes for more efficient and equitable distribution of vaccines.
Kaptrace (Kapsule)	United Kingdom	KapTrace uses a suite of technologies to track medicines through distribution channels in Africa.



# SASBI in a nutshell

Leading House



Universität  
Basel



Swiss Local  
Startup  
Ecosystem



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
  
State Secretariat for Education,  
Research and Innovation SERI



University  
of Basel

National & International  
Cooperation

AfriProspect

INNOVATE | CONNECT | SCALE

## SASBI

Swiss and African  
Science and Business  
Innovators



### 20 University Innovation and Tech Transfer Offices

Expression of Interest from Institutions in:  
Kenya Rwanda South Africa  
Nigeria Ghana



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Embassy of Switzerland in South Africa

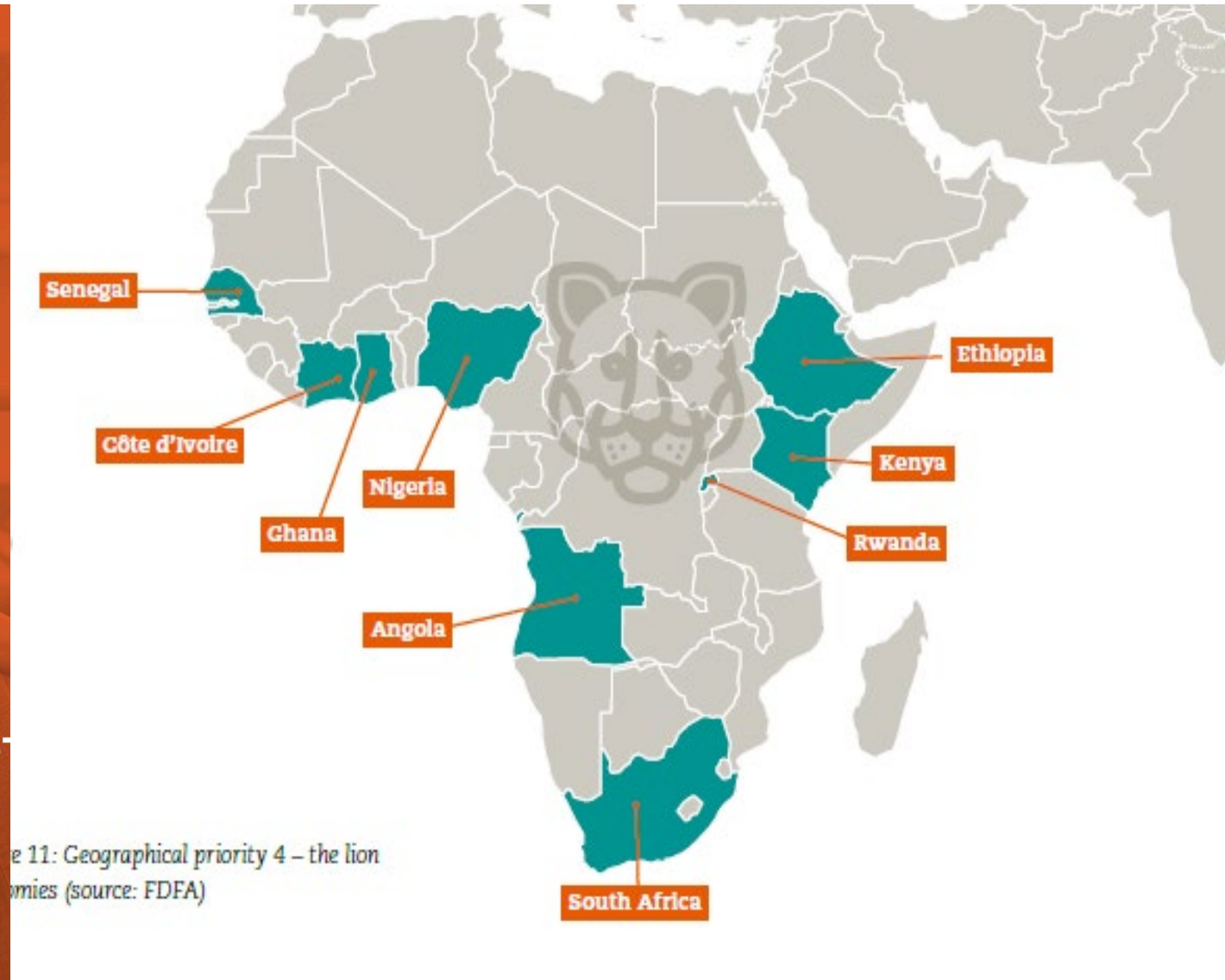
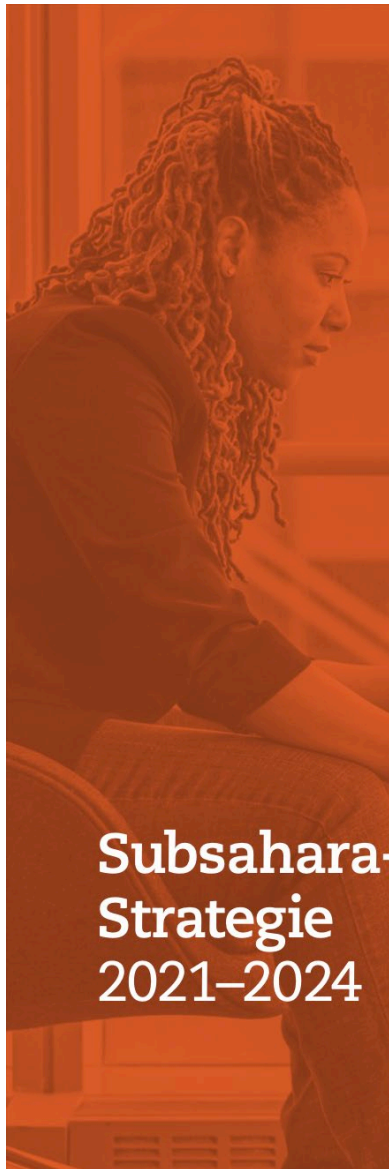


University of Mines  
and Technology UMaT  
Tarkwa, Ghana



University of Nigeria  
to restore the dignity of man

# Sub-Saharan Africa Strategy 2021 – 24: The economic lioness states





# A new valley of death?– Implementing the SDGs



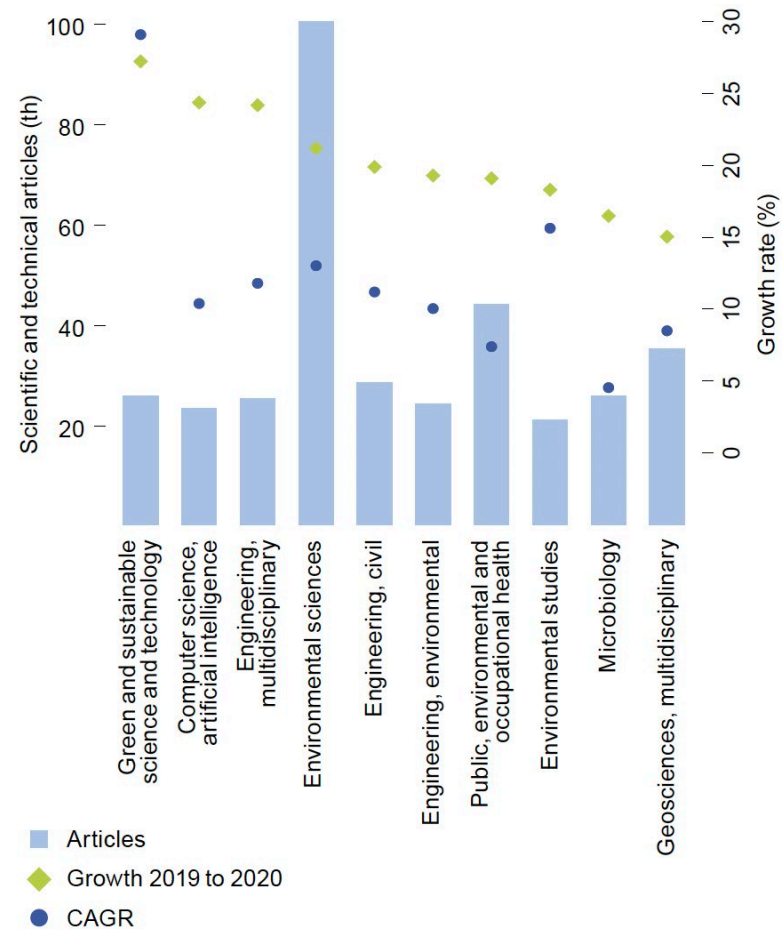
United Nations 2015

# Impact of the SDGs

## Global Innovation Index 2021

Tracking Innovation through the COVID-19 Crisis

Figure 1  
Fastest growing significant research fields by number of publications, 2020



# A new valley of death?– Implementing the SDGs

## Typical reasons for “Yes .... But.....”

- Technological innovation may need long-term and significant funding
- High risk in investment
- Marketplace may be 5-10+ years down the pipeline
- Possible return on investment questionable and far in the future
  
- High-tech solutions may be too costly for local markets
- Low-tech solutions may not be attractive to local markets

# Avoiding a new valley of death– SDG initiatives



**SDG2 - Zero hunger →**

Ifarm Agritech (Kenya)

Google



Startups for Sustainable Development



Nneka Mobisson  
CEO





# Sub-Saharan Africa – Startups addressing SDGs



uses a digital platform and in-person hubs to support people living with chronic diseases.



is pioneering mobile cold storage units powered by renewable energy for smallholder farmers, to help reduce post-harvest loss (US)



offers software infrastructure and operational support for medical emergency response services in Sub-Saharan Africa



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provides effective, affordable insurance to farmers in emerging markets and delivers instant claim settlement.

# The experience so far – Dos (and don'ts)

- Entrepreneurs should think about the social impact of their business idea before developing a startup
- Identify priority SDGs and set targets and KPIs to monitor progress
- Measure results and communicate them internally and to stakeholders
- Align company values and culture to the SDGs so all employees are aware of the common goals.

# Synergy, symbiosis and some other S's

- Synergy – learn from the Swiss experiences
- Symbiosis – work equitably and equally with swiss partners
- Sustainability – identify needed and realistic innovations
- Self- but not over-confident
- Science, solve, supply as innovation pipeline
- Succeed

