



Digital Health in Developing Economies

Webinar

1st December 2020 15:00 CET

Davide Coppola, Arnaud Runge (ESA)
Aly Shalaby (AXA OneHealth)
Rajesh R. Singh, Arish Syed (WISH Foundation)



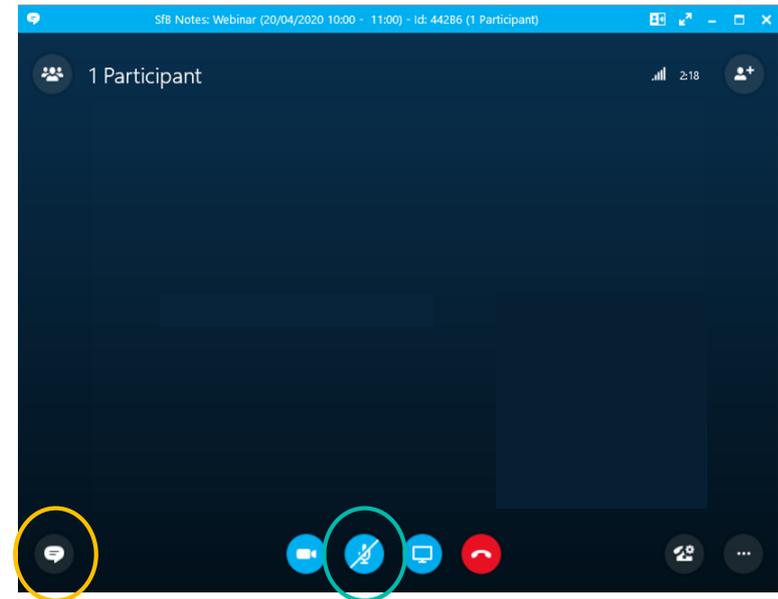


Davide Coppola

WELCOME TO THE WEBINAR!

Before we start...

- Due to the number of attendees, please **keep your microphones muted** at all times and switch off the webcam function
- You can use the **conversation function** anytime to submit your questions. They will be addressed during the Q&A at the end of the webinar





AGENDA

- **ESA introduction**
- **“Digital Health for developing economies” Invitation To Tender**
 - Objectives
 - Areas of interest
 - Value of Space
- **Guest speakers**
 - Aly Shalaby (AXA OneHeath)
 - Rajesh R. Singh & Arish Syed (WISH Foundation)
- **How to apply: funding and tender information**
- **Open Questions & Answers session**





THE EUROPEAN SPACE AGENCY

Purpose of ESA

To provide for and promote, for exclusively peaceful purposes, cooperation among European states in space research and technology and their space applications.

Facts and figures

- Over 50 years of experience
- 22 Member States
- 8 sites across Europe and a spaceport in French Guiana
- Over 80 satellites designed, tested and operated in flight



space transportation



science



human spaceflight



earth observation



telecommunications
and applications



navigation



exploration



operations



technology



→ ESA SPACE SOLUTIONS

The largest space innovation network in the world

- The go-to place for great business involving space to improve everyday life.
- Supporting European start-ups and SMEs to develop businesses using space technology and data.
- Offering funding, business and technical support to help to generate successful business and create jobs.





→ ESA SPACE SOLUTIONS OFFERS



Zero-equity funding (from €50k to €2M+ per activity)



A personalised ESA consultant



Technical support and commercial guidance



Tailored project management support



Access to our international network of ESA and partners



Access to our network of investors



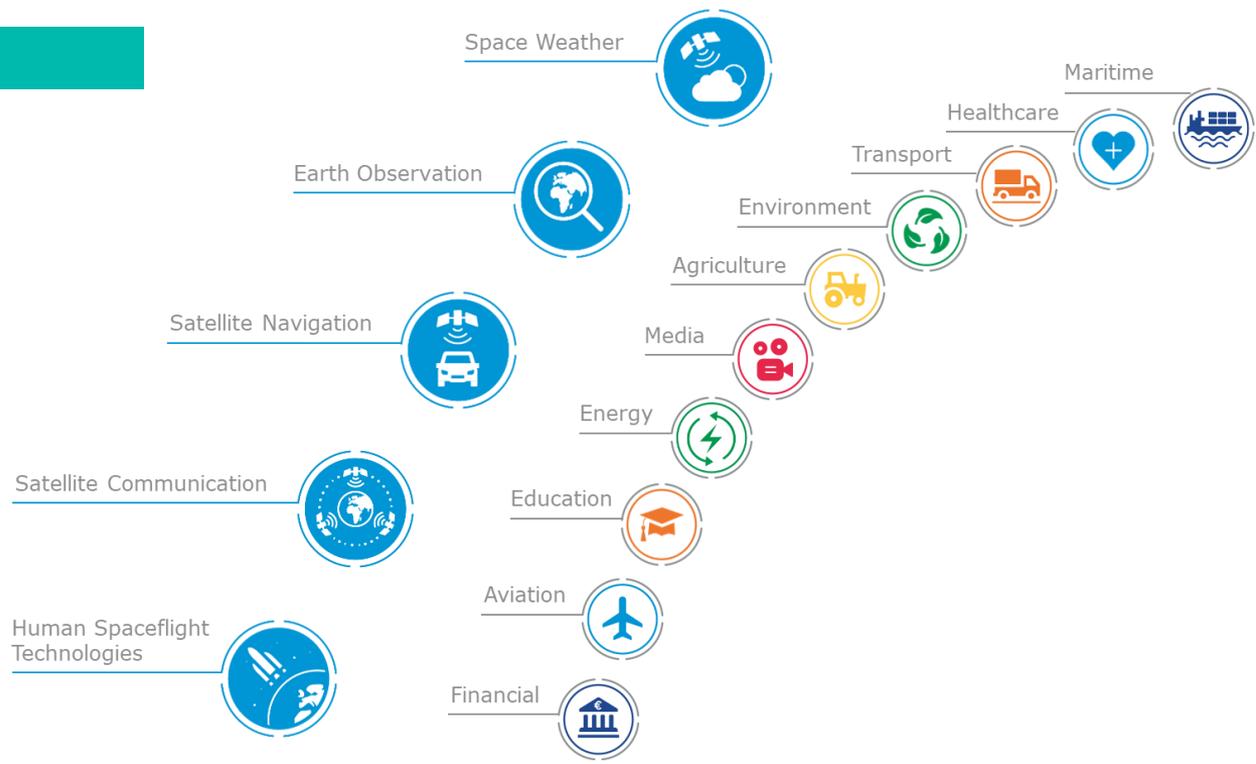
Credibility of the ESA brand





ESA SPACE SOLUTIONS

Could you be leveraging Space technology and data for the benefit of life on Earth?





OneHealth



Digital health

- Health care systems in developing economies and health ecosystems continue to face considerable challenges in providing high quality and affordable care.
- These challenges are also acknowledged in the sustainable development goals (SDGs) whose Target of 3.8 on universal health coverage (UHC) emphasizes the importance of all people and communities having access to quality health services without risking financial hardship.
- ESA has established cooperation with AXA One Health and Wish Foundation to accelerate sustainable innovation through space data and technology and advance the provision of seamless and sustainable healthcare in developing economies.
- As a first step of this cooperation, ESA is launching a new Invitation to Tender for feasibility studies to assess the technical feasibility and commercial viability of space-based services and solutions in the area of digital health for developing health ecosystems. The aim is to reduce the technical and commercial risks for their implementation and operation.



Planned ESA-funded invitation to tender on Digital Health for developing economies

The main objectives of the Feasibility Study are to:

- assess the technical feasibility and commercial viability of services and solutions in the area of digital health for developing health ecosystems
- address technical and non-technical (e.g.: commercial, regulatory, privacy) risks and constraints for services implementation and operation
- provide recommendations for the implementation of such service(s) on the targeted market
- prepare a potential roadmap for a follow-on demonstration project.

Invitation to tender planned to be issued by Dec 2020

Funding up to € 200K per activity (100% ESA funded)

Duration 12 months

AREAS OF INTEREST

- Health information digitalisation.**
 The purpose is to systematise data collection, organisation or analysis across the various sectors of health care, catering for: better serviceability of patients, systematized digital data collection and disease early warning systems, vulnerability assessment to map the gaps in health service infrastructure.
- Improving diagnosis and treatment.**
 The purpose is to improve allow health workers to improve clinical performance through real-time assistance with clinical decision-making and diagnosis and diagnosis for appropriate treatment.
- Last mile healthcare service delivery and enabling technologies.**
 The purpose is to support healthcare service delivery to elderly population and unserved rural communities, as well as supporting shift of medical treatment from primary care to home based care and including tele-medicine solutions.





Arnaud Runge (ESA)

Stayin' Alive - AMAZON



- Physiological monitoring (e.g. ECG, temperature, blood pressure), Imaging (e.g. laryngoscopy, ultrasound), Defibrillator
- Interoperability/integration with other systems (e.g. digital X-Ray), data sharing with 3rd party digital patient records



Amazon Tempus-IC

- Deployed on aircraft of several companies



- Tested in field with International SOS
- Prove device works in real-life situations, under rugged conditions, in Algeria and Nigeria, but also in the UK with Air Ambulance services

Tempus Pro

- Pre-hospital emergency care market
- Remote and challenging locations



Target customers

- Professional medical personnel (including military medics),
- Governmental & private Emergency Medical Services entities
- Organisations involved in managing commercial healthcare in remote locations e.g. iSOS or their customers

Stayin' Alive - AMAZON



- Use by ESAMedical Operations team for ESA astronaut landings
- Use in analogue environments
- Technological Demonstrator to fly on ISS
- 2 units owned ESA on loan to medical centres in Spain to fight CV19





KEY FOCUS AREA HEALTHCARE - Examples of Application

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...e, funded by readers

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The Guardian

Opinion | Sport | Culture | Lifestyle | More

Location Media Society Law **Scotland** Wales Northern Ireland

Scotland

NHS expands drone transport of samples from Scottish islands

Winter testing of drone flights to mainland raises hope of fast medical deliveries



Drone deliveries soar in rural Scotland during coronavirus outbreak

Isle of Mull among areas trialling use of unmanned aircrafts to distribute supplies

- [Coronavirus - latest updates](#)
- [See all our coronavirus coverage](#)



▲ A Skysports worker with a delivery drone on the Isle of Mull. The aircraft can provide NHS workers with PPE and other supplies. Photograph: Skysports

Ten weeks on from the peak of the coronavirus pandemic there are still acute

SEDDCR Project

Delivery of medical supplies and samples by drones enabled by space-based technology.

Drone solution piloted remotely from the Operations Centre, and flies automatically, navigating through pre-set GNSS waypoints.

Satcom connectivity between the Ground Control Station (GCS) and the drone is an essential part of the solution as it provides 100% communications coverage over the entire route – a crucial safety enabler to scalable drone delivery

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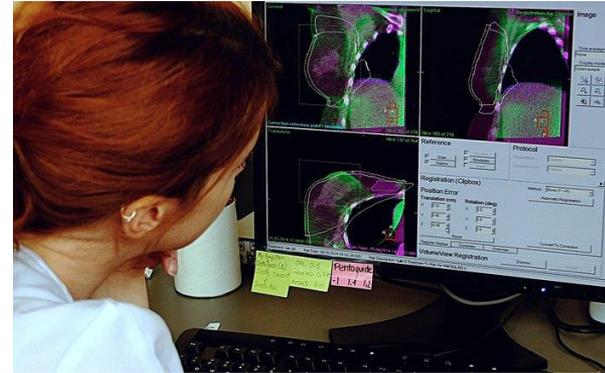


Tele-Ultrasound Technology

- Technology development funded across different ESA programme lines to support scientific experiments & medical operations on ISS
- Technology exploited by French company Adecotech for many years
- Used in the context of CV19 to ensure care provision continuity to non CV19 patients while preserving medical staff.
- https://www.esa.int/Applications/Telecommunications_Integrated_Applications/Ultrasound_for_space_offers_remote_diagnosis_to_patients_on_Earth



MERCURY: ending the isolation of BS Units



- Development of a reliable and sustainable service to transfer via satellite mammographic X-Rays from breast screening units to a reference hospital
- Project led by a UK SME
- Aimed at:
 - Increasing women screening throughput
 - Reducing cost of screening per woman with the same resources
 - Reducing risk patient data loss
 - Implementing a paperless approach
- Demonstration phase involving 10 pilot sites over the whole UK

During the Pilot Phase

- 200 000 medical images transferred without any loss
- 10 pilot sites out of which 9 were interested to potentially place a contract
- 4 did before the conclusion of the project

Since the end of the contract

- Commercial interest picking-up
- 500 000 x-rays already transferred without a single loss
- Increased throughput of screened women
- 25-30 contracts have been signed
- MERCURY service is a game changer for the National Health Service of the UK by implementing paperless / electronic-based medical procedures
- 3 jobs created





OneHealth



Aly Shalaby (AXA OneHealth)

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European Space Agency



Digital Health in Developing Economies:

AXA OneHealth

Egypt

Dr. Aly Shalaby
Chief Digital Health
Officer



Digital Health in Emerging Markets: Africa



Digital Health in Egypt

Topline healthcare statistics for Egypt

→ The Egyptian government has allocated EGP 93.5bn to the healthcare sector in the fiscal year (FY) 2020/21 budget (28% increase).

→ Egypt's total healthcare spending will post a compound annual growth rate (CAGR) of 8.4% through to 2023 to reach US\$12.6 billion.

→ Egypt's health challenges disproportionately affect the rural poor and have the potential to impact the country's economic prosperity more broadly over the long-term.



100,388,073

Population, persons



US\$ 3,020

GDP per capita



303.2

GDP, billion current US\$



17.2

Diabetes prevalence



5.3% (2017)

Health expenditure
as a share of GDP



0.5 per 1,000

population (2018)
Density of physicians



20.3 deaths per

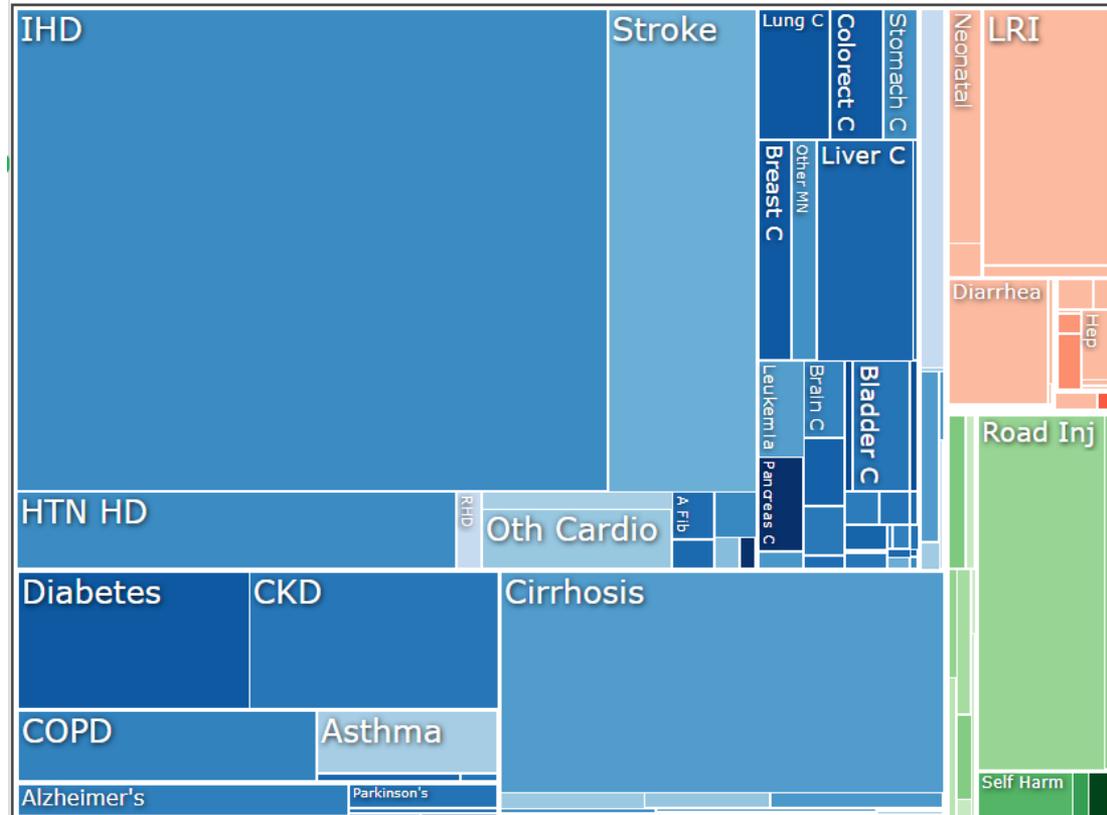
1000 lives births (2019)
Under-5 mortality rate

Source: Knoema

Top 10 Causes of Death in Egypt

CDC, 2019, All Ages

- Ischemic heart disease 32%
- Cirrhosis 11.6%
- Cancer 11%
- Stroke 8.6%
- Road Injuries 5.24%
- Chronic Kidney Disease 4%
- Lower Respiratory Infections 3.8%
- Hypertensive Heart Disease 3.8%
- Diabetes 3.65%
- Chronic Obstructive Pulmonary Disease 2.5%



Digital Transformation in Healthcare in Egypt

- Egypt is making several key investments in the area of health technology to reduce costs and provide efficient care to its people. COVID-19 has further accelerated digital transformation in the country with the increased use of remote monitoring, telehealth platforms and Artificial Intelligence (AI)-enabled apps and devices
- The Egyptian government is driving digitization across sectors and has been pushing for universal healthcare (NHS-style universal healthcare for every citizen in Egypt) and cross-industry collaborations.
- A national AI strategy has been developed to integrate artificial intelligence in healthcare sector among others.
- Egypt aims to have 7.7 per cent of its GDP derived through AI by 2030.



Digital Healthcare Startups in Egypt

Digital Health Systems

Vezeeta.com

ROLOGY

dkimia

الدكاترة



NABDA CARE

Bypa-SS

tamen.Net

Infomed

Telemedicine

Vezeeta.com

altibbi
الطبي

Shezlong
You Talk.. We Help

Dr. 7alan

EMBER



Pashakeem



CARESQUARE

Homecare

Vezeeta.com

Hospitalia
EXPERTS YOU CAN TRUST 24/7



Tkeema

TABIBI
Clinics and Home Visits



YA DOCTORY
YOUR HOME HEALTHCARE PROVIDER

Digital Pharmacy

Vezeeta.com

Yodawy
Pharmacy Benefits Platform



علاجي

chefaa

Devices

VRapeutic

MOGASSAM

BIONICLIMBS



AXA OneHealth

Focus on Digital Healthcare

About AXA OneHealth

A one-stop-shop for medical services to simplify the healthcare journey of our customers

Our Numbers



6
Medical Centers



22
Specialties



105
Medical team

Our Partners & Affiliates



al mokhtabar
moamenah kamel lab
Lab Partner



ada

AI Symptom Checker



Yodawy
Pharmacy Benefits Platform
Medication Delivery Partner



ata
Teleconsultation Affiliation

Our Footprint



North Coast

Sheikh Zayed
(opening soon)

Downtown

Heliopolis
(opening soon)

Nasr City
(opening soon)

New Cairo
OneHealth



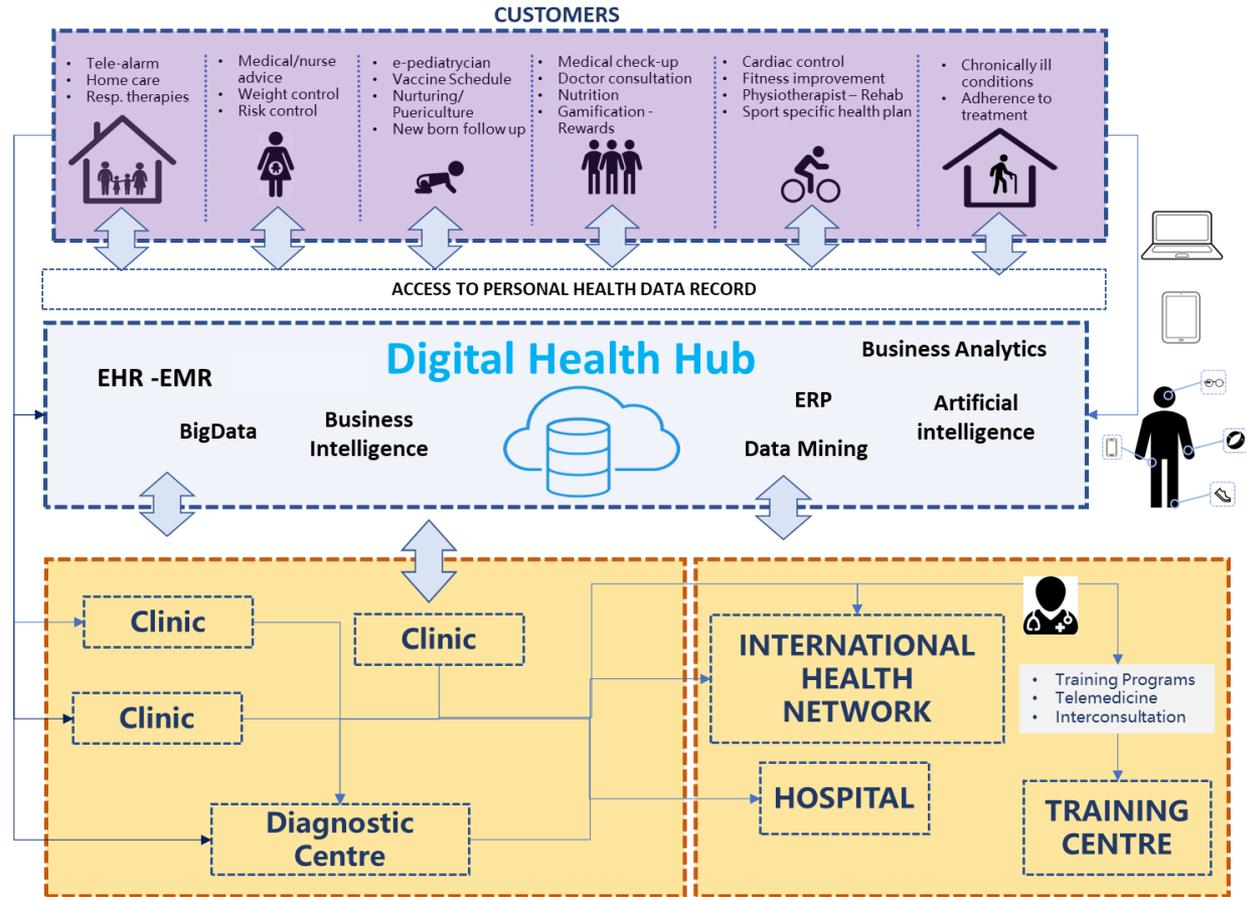
AXA OneHealth Portfolio of Services

AOH Services range from physical on-site services to digital virtual services



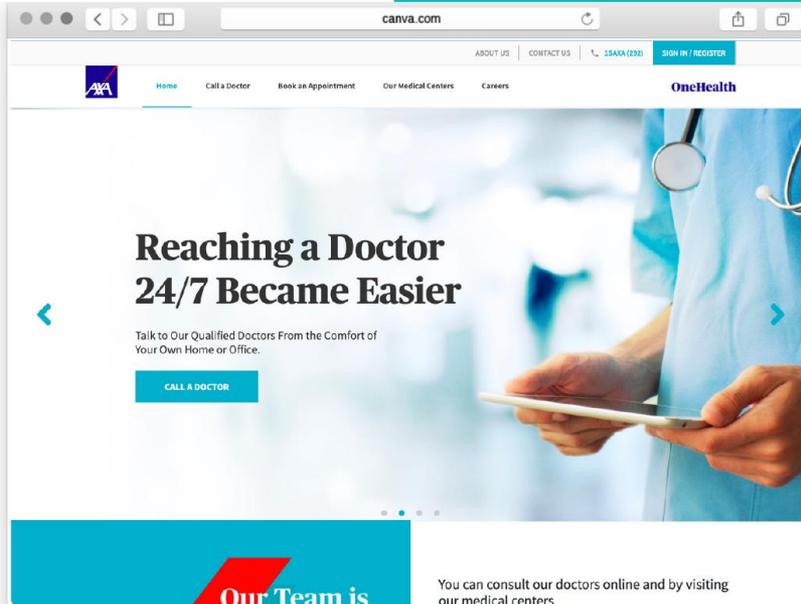
AXA OneHealth Digital Health Hub

- **Client-facing:**
 - Customer-centric
 - Increase engagement
 - Empowerment
- **Core:**
 - Nerve-center
 - Data lake
 - Cognitive analytics
- **Doctor-facing:**
 - Seamless connection
 - CDSS
 - Referrals



Digital Tools

Website

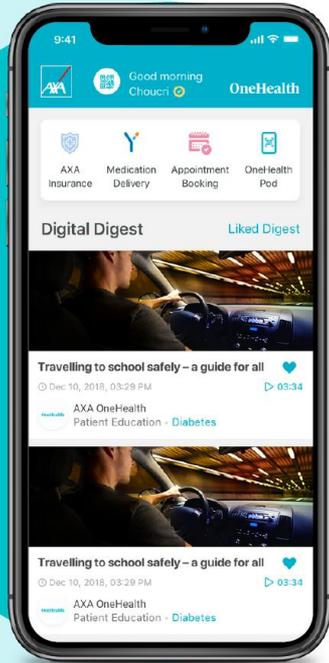


AXA OneHealth Website

- Appointment Booking
- Access to Electronic Medical Record
- Teleconsultation

Digital Tools

Mobile App



- ➔ Appointment Booking
- ➔ Access to Electronic Medical Record
- ➔ Teleconsultation
- ➔ Medication Delivery
- ➔ Medication/Appointment Reminders
- ➔ Articles

Digital Tools

Virtual Pod



Virtual Clinic/Pod

- ➔ Video consultation
- ➔ Electronic Medical Record
- ➔ BMI
- ➔ Weight measurements
- ➔ Blood pressure tests
- ➔ Pulse oximeter
- ➔ Dermascopy

Digital Tools

Check-in Kiosk



Check-in Kiosk

- ➔ Self-service for
 - ➔ Registration
 - ➔ Booking
 - ➔ Check-in

General Teleconsultation

Have 24/7 access to Family Medicine Specialists, who are highly trained to treat all cases and deal with all age groups. Accessible by mobile app or by calling AOH hotline number 15292.



24x7
Availability



Evidence based practice
based on guidelines of NICE and the American Teleconsultation Association



Multi-lingual
Arabic & English



Accessible
Phone or Mobile app



Full-time Highly trained family medicine doctors



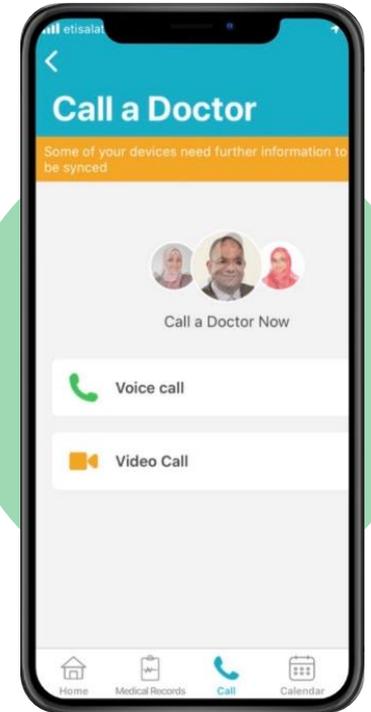
ZERO
Malpractice Claims



Electronic Medical Record to record patient history



Personalized
selection of the doctor's gender



Specialist Teleconsultation

Access specialized doctors from 15 different specialties via a safe platform. Appointments are pre-booked in advance via AOH hotline (15292) or the mobile app.



Family Medicine



Dental



Dermatology



Chest



Pediatric



Ear, Nose &
Throat



Neurology



Obstetrics
and
Gynecology



Gastro-
enterology



Ophthalmology



Orthopedic



General Surgery



Cardiology



Nephrology



Urology



Rheumatology



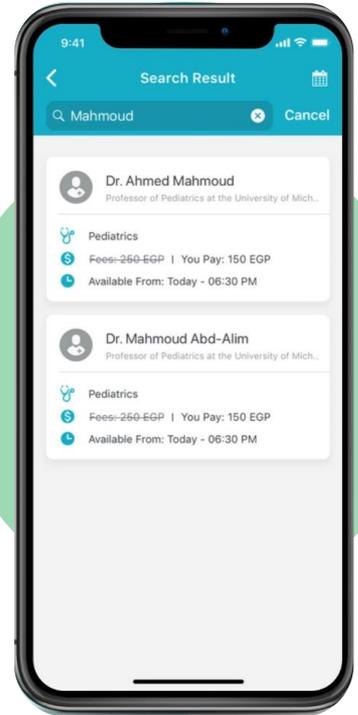
Vascular Surgery



Psychiatry



Endocrinology





Future of Digital Healthcare

Future of Digital Healthcare



Digital apps will be used to support medical care and treatment



Interventional and rehabilitative robotics & AI will support doctors in better diagnosing & treating patients



Technology will enhance specialist medical care



Implants and chips will allow better collection and analysis of data and genomes, that could be shared with app or medical network.



Internet of Medical Things will allow healthcare and nutrition plans will be personalized for the individual



3D Printing can change healthcare and medicine making it more personalized, accessible, and affordable.



Thank you



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European Space Agency

A close-up photograph showing a person's hands holding a smartphone to scan a white wristband on a baby's arm. The baby is wearing a white patterned garment. The background is slightly blurred, showing other people in a clinical or community setting. The overall scene is brightly lit.

TRANSFORMING PRIMARY HEALTHCARE
through **INNOVATION**

The logo for WISH, featuring a stylized leaf icon above the word WISH. The leaf icon consists of three overlapping leaf shapes in yellow, orange, and red. The word WISH is written in a large, black, serif font.

WISH

WADHWANI INITIATIVE FOR SUSTAINABLE HEALTHCARE



A NOT FOR
PROFIT



VISION

QUALITY HEALTH CARE FOR ALL

MISSION

TO IMPROVE PRIMARY HEALTH CARE SYSTEMS THROUGH INNOVATIONS

GOAL 2027

TO FACILITATE ACCESS TO AFFORDABLE & HIGH QUALITY HEALTH CARE FOR 100 MILLION PERSONS IN THE DEVELOPING WORLD BY 2027

OUTREACH



140+ million
Population Covered
Across 5 States in
India



650+ Primary
Health Clinics



400+ Staff



21.2 Million

GROWTH TRANSITION

Direct Implementation

Deliver primary healthcare services through innovation driven models, in multiple geographies.

Strategic Advisory Services

Provide strategic advice and technical support to Govt. agencies towards our mission.

Platform for Primary Health Care Solutions

Offer a suite of Primary Healthcare Solutions that stem from our experiences & can be scaled by partners.

Thought Leadership

Be a national & international voice, spearheading ideas that shape the contours of primary health care.

DIGITAL HEALTH FOCUS

National Portability & Interoperability

- Facility/ Hospital Mgt. Process Digitization
- Application Integration & Interoperability
- Compliance to National & Global Standards
- UHID/ Registries / Consent Manager / Anonymizers etc.

Telemedicine

- Teleconsultation Hub & Spoke Scale up
- Decision support system
- Targeted Client Communication
- Personal Health Record

Meaningful Use Of Data

- Data Security , Mgt. & Legal Adherence
- Comprehensive PHC Performance Measurement System
- Predictive Analytics & AI for Policy Action

Innovations

- Med-tech POCDs for advanced diagnostics with AI/ML capacities
- M-Health Applications/Solutions
- Digital Market Access Program through National Innovations Unit
- E-Learning: WISH2LEARN

Area of Interest: Health Information Digitalization

The purpose is to systematize data collection, organization and analysis leading to meaningful use of data across dimensions within healthcare.

Problem Statement

“

The diverse systems / applications that are being used for collecting health information across tiers and structures / domains are disintegrated and are not interoperable, thereby leading to multiple dashboard platforms. This further inhibits an integrated understanding through meaningful use of data by policy decision makers for futuristic planning as well as for promoting better governance of the health system. The opportunity post integration and ensuring data fidelity across structures opens up the GIS based equitable need based understanding through usage of AI / ML supported tools / systems leveraging resources as well as impacting the health financing of the country through informed policy actions.

User Needs

There are **two broad components** envisaged as part of the user needs for a solution in health information digitalization, that would advance the benefits of systematic data aggregation and analysis to the stakeholders present across the ecosystem.

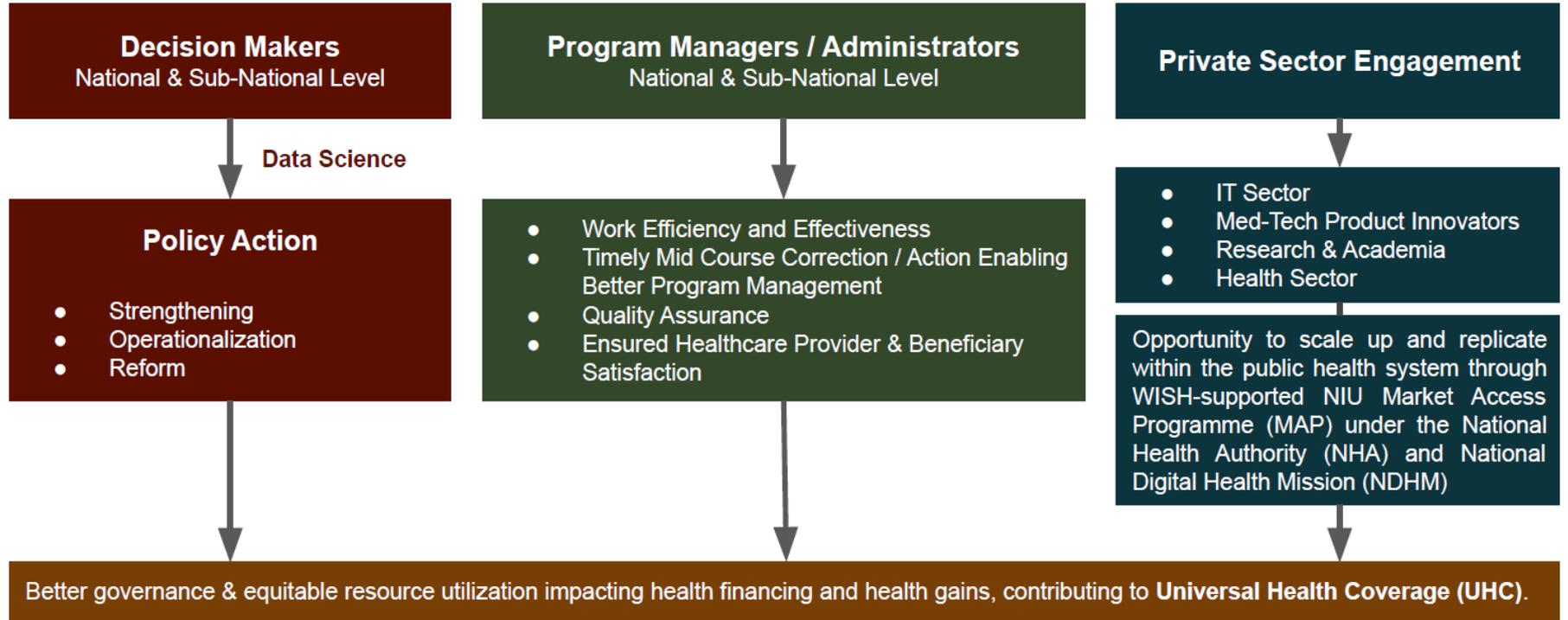
Decision-Making System: Where information collected is disaggregated to demography with temporal and spatial variation analyzed for trends and patterns, and an understanding of financial planning is obtained with respect to equity and resource allocation.

Predictive Analytics Tool: Where information aggregated is used to forecast key metrics by virtue of current trends, using Machine Learning & AI algorithms, and likely future trends are analyzed to prepare targeted interventions accordingly.

Area of Interest: Health Information Digitalization

The purpose is to systematize data collection, organization and analysis leading to meaningful use of data across dimensions within healthcare.

User Needs: Stakeholder Mapping



Area of Interest: Community & Home-Based Care

Extending health service access to poor and unserved (rural) communities, including solutions to shift medical treatment from primary care to home care.

Problem Statement

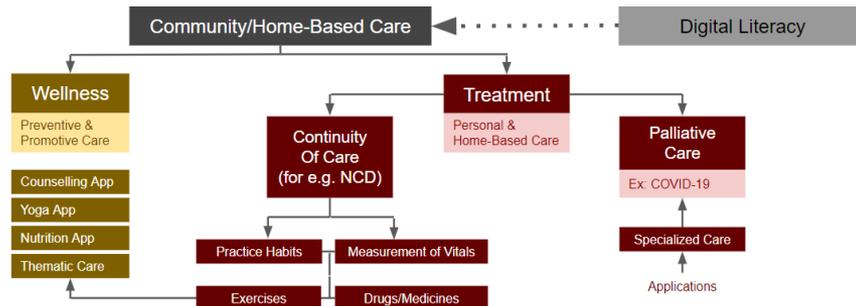
“

Building a **resilient Home Based Care (HBC) system** for quality primary healthcare service delivery, thereby:

1. **Reducing the Burden** on Primary Healthcare Facilities;
2. **Reducing the Out of Pocket Expenditure**; and
3. **Reducing the Infection Exposure** to Health Care Providers (HCPs) and Beneficiaries

hence impacting health gains in the communities.

Use Cases: Overall Framework



User Needs: Salient Features

1. Community Healthcare Applications

Beneficiary-to-Provider (B2P) Teleconsultation

2. Personal Care

PHR, Continuity of Care & Targeted Client Communication

3. Emergency / Pandemic Response Driven Home Based Care

Containment Strategy incl. Symptoms & Direct Contact

Area of Interest: Improving Treatment & Diagnosis

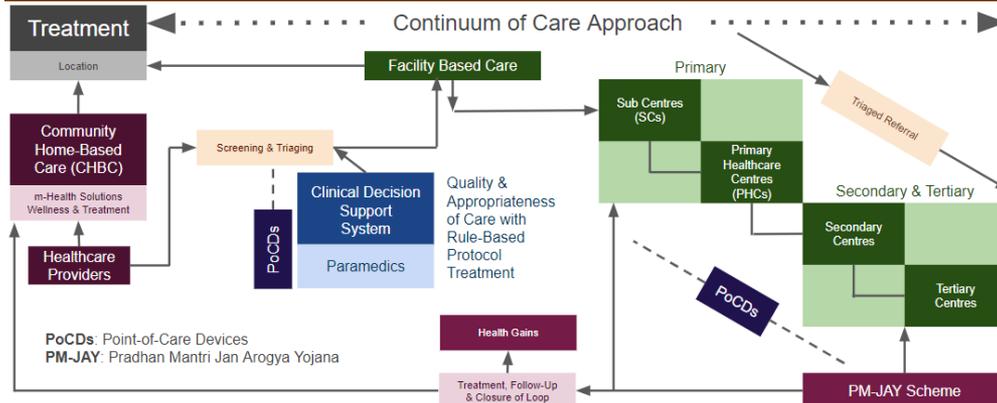
The purpose is to allow health workers to improve clinical performance through real-time assistance with clinical decision-making and diagnosis for appropriate treatment & triaged referral under PMJAY.

Problem Statement

“

Introducing tools, applications or products as well as interlinkage and portability of PHR across facilities with PMJAY as envisaged under NDHM thereby supporting or enabling **informed decision making for paramedics / healthcare providers, for appropriate care or triaged referral** (hence **closing the loop for continuum of care**), thereby **delivering the twelve services mandated by the Ayushman Bharat PM-JAY scheme** within the Indian primary healthcare system.

Use Cases: Overall Framework



User Needs: Salient Features

- 1. Point of Care Devices (PoCDs)**
Provision of all twelve AB services
- 2. CDSS for Paramedics & Frontline Workers**
Rule-based protocol treatments
- 3. Interlinkage of NHM PHC with PM-JAY**
Triaged referral to PM-JAY, Data Interoperability between all data capturing systems in pathway

THANK YOU



WISH

Transforming Healthcare Through Innovation



A hand on the left holds a glowing orb. From this orb, a network of white icons is connected by dotted lines. The icons include a first aid kit, a globe, a syringe, a stethoscope, a person's head, a water drop, a laboratory flask, a building, a telephone with a cross, a person with a stethoscope, a clipboard, a heart, a heart with a cross, a pill, an eye, a hospital van, a virus, a bed with a cross, a heart, and a person's head. The background is dark blue with a blurred hand on the right.

**How to apply:
Funding and Tender Information**



ESA TENDER INFORMATION

Funded participation to ESA Space Solutions is open to any company and/or organisation, be it as group of users, public body or non-governmental organisation, residing in the following Member States:

Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom



HOW TO APPLY

1. **Register** (minimum 'light registration') by completing online questionnaire on ESA-STAR Registration (esastar-emr.sso.esa.int)
2. **Download** the official tender **documentation** (Invitation to Tender), which will be available as soon as the ITT is open via EMITS (emits.esa.int)
3. Create 'Bidder Restricted Area' in ESA-STAR
4. **Write your Proposal** using the template provided in the Tender documentation and obtain **Letter of Authorization** from your National Delegation (business.esa.int/national-delegations)
5. **Submit** your proposal via 'Bidder Restricted Area' in ESA-STAR Tendering (esastar.sso.esa.int)

More info can be found here:

esa.int/About_Us/Business_with_ESA/How_to_do/esa-star_Registration_Process



BASIC PRINCIPLES - ESA-STAR

Registration (minimum 'light registration') on [ESA-STAR Registration](https://esastar-emr.sso.esa.int) (<https://esastar-emr.sso.esa.int>)

Please note that esa-star allows two levels of entity registration: "Light" and "Full". This allows new users wishing to do business with ESA to carry out their registration in two steps. A "Light" registration will grant access to all esa-star services up to and including proposal submission. The award of ESA contracts requires "Full" registration.



The screenshot shows the ESA-STAR registration portal. At the top left is the ESA logo and the text 'esa-star registration'. Below this is a navigation bar with the date '16 Apr 2020' and links for 'ESA Home Page', 'EMITS', 'ESA Industry Portal', 'Contact Us', and 'Help'. A left-hand menu contains 'Home', 'New Registration', 'Maintain Entity Information', and 'ESA Entities Directory'. The main content area is titled 'NEW REGISTRATION' and contains a question mark icon followed by the text 'Please select one of the two options:*'. Below this are two radio button options: 'A. I am an Entity that has the capacity as "legal entity"' and 'B. I am a Business Unit acting on behalf of a "legal entity", without being entitled to commit on contracts on my own'.

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BASIC PRINCIPLES - EMITS

Tender documentation: on emits.esa.int

- Announced under “Intended Invitations to Tender (IITT)”
- Published under “Open Invitations to Tender (ITT)”



The screenshot shows the EMITS website interface. At the top left is the ESA logo and the text 'emits'. To the right is a navigation menu with links: ENTITIES, LOGIN, ESA Home Page, Industry Information, Entity Registration, Service Desk, and Help. Below the navigation, the user is identified as 'User: Guest'. On the left side, there is a tree view menu with items: News, COVID-19 measures and instructions, Procurement Review Board Announcements, Open Invitations to Tender, Intended Invitations to Tender, Reference Documentation, ECOS Resources, and How to do Business with ESA. The main content area on the right features the 'emits' logo and a large blue button that says '→ INVITATIONS TO TENDER PUBLISHED'. Below this button, it says 'Hosted by ESA' and 'Rel. 7.9.0.0'.

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BASIC PRINCIPLES - EMITS

Registration on esa-star is required to access [tender documents in Emits](#)

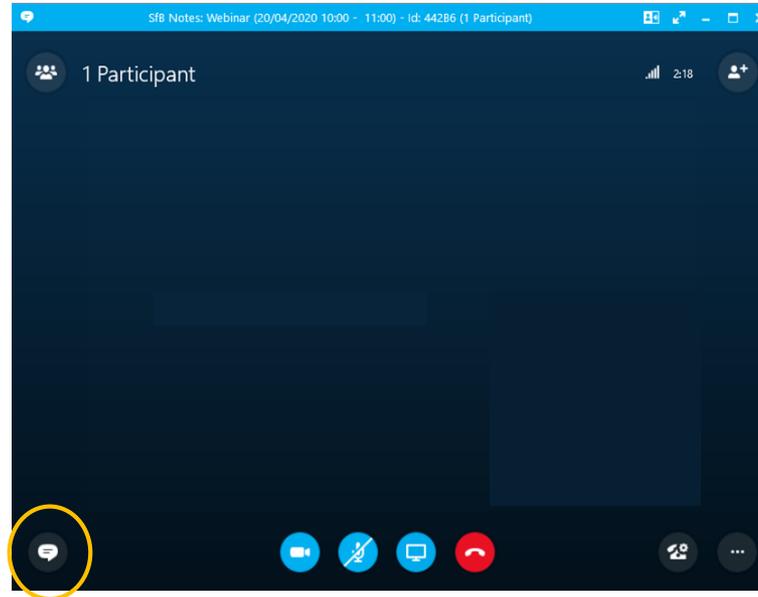


-  [Letter of Invitation, 105055 Bytes](#)
-  [Statement of Work, 1053145 Bytes](#)
-  [Contract Conditions, 359891 Bytes](#)
-  [Tender conditions, 450220 Bytes](#)
-  [Clarification-e 1, 42650 Bytes](#)

Transfer selected documents as

[Current Expression of Interest](#)

OPEN QUESTIONS & ANSWERS SESSION



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→ THANK YOU!

business.esa.int

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