RE-IMAGINING TB CARE
Transforming *when*, *where*, and *how* services are accessed and delivered

BACKGROUND PAPER
34th Board Meeting

Section A: Executive summary

This background paper **provides an overview of the Re-imagining TB Care initiative**, including its current achievements (from 2018-present) and future activities (for 2021-22).

As part of the Stop TB Partnership's efforts to **build upon the organization's extensive and deep knowledge and expertise in rolling-out (i.e., introduction and scale-up) TB product innovations**, particularly digital solutions such as computer aided detection of chest x-rays (CAD), digital adherence technologies (DATs), community-led monitoring platforms (e.g., OneImpact), etc., even prior to the COVID-19 pandemic, the External Affairs & Strategic Initiatives (EASI) team, jointly working together with country and global partners, including tuberculosis (TB) affected people and communities, healthcare providers, and country programmes, developed the Re-imagining TB Care initiative starting in late 2018.

Since then, and particularly due to the COVID-19 pandemic and the unprecedented shock the pandemic has caused to health systems, including in TB affected countries, the need to "re-imagine TB care", particularly **pressure testing our current assumptions, approaches, and infrastructure** and **transforming *when*, *where*, and *how* services are accessed and delivered for TB, other lung- and respiratory-based illnesses (e.g., COVID-19 pandemic, lung cancer, etc.), and TB co-morbidities (e.g., HIV, diabetes, etc.)** has become more critical and relevant.

The Board is requested to provide guidance and inputs on the Re-imagining TB Care initiative and the implementation of the initiative's activities.

Section B: Content

1. Background

The Re-imagining TB Care initiative was **originally conceptualized at the first TB Innovation Summit**, which was co-organized by the Stop TB Partnership, Johnson & Johnson, United Nations Foundation, Global Fund to Fight AIDS, Tuberculosis, and Malaria ("Global Fund"), and the World Economic Forum, in advance of the first United Nations High-Level Meeting (UNHLM) on TB in September 2018. A broad spectrum of country and global partners, including TB affected people and communities, healthcare providers, and country programmes, came together to **discuss the need to modernize our approach and the important role that innovation can – and must – play in delivering the current tools we have today, developing the next generation of solutions we need for tomorrow, and, ultimately, driving progress** toward our shared goal of ending TB by 2030.

Since then, **four (4) consultations and multiple bi-lateral discussions have been organized and held with a broad spectrum of country and global partners**, including with ministries of health/country programmes (e.g., Ministry of Health, Brazil, National TB Programme, Philippines), civil society and communities (e.g., EANNASO, TB Proof), implementing partners (e.g., Friends for International TB Relief, PAS Center), innovators (e.g., Cepheid, SureAdhere Mobile Technology, Inc.), multi-lateral funders/technical agencies (e.g., Global Fund, World Health Organization (WHO)), private foundations (e.g., Bill & Melinda Gates Foundation, kENUP Foundation), traditional donors/development

banks/impact investors (e.g., USAID, KfW Development Bank, Global Health Investment Corporation), etc. to define, pressure test, discuss, and sharpen the Re-imagining TB Care initiative's scope, activities, and deliverables. The list of consultations can be found at the below table and, in total, **over 150 attendees**, across all consultations, participated in these discussions.

Re-imagining TB Care Consultation List		
Date	Event Name	Country
January 2019	1st Consultation (Stop TB Partnership's 31st Board Meeting)	Switzerland
May 2019	2nd Consultation (73rd World Health Assembly)	Switzerland
October 2019	Human Centered Design Workshop/ 3rd Consultation (50th Union Conference on Lung Health)	India
September 2020	4th Consultation	Virtual

In addition to the consultations and bi-lateral discussions, while the Secretariat and its various teams and initiatives, including the Country & Community Support for Impact (CCS4I) team, TB REACH, and the Global Drug Facility (GDF), have been at the forefront of rolling-out digital solutions (some even prior to the COVID-19 pandemic), the EASI team believed it was crucial for the organization to have a clear understanding of the vibrant digital solution landscape and the key actors across the public and private sector to strengthen the Re-imagining TB Care initiative's value proposition and increase its potential impact. The team undertook a **landscaping exercise of digital solution initiatives across various companies and organizations** to:

- Assess the current status quo of global digital solution initiatives, including the key actors, missions, objectives, activities, innovations, common trends, barriers, opportunities, etc.;
- Establish whether the initiative's mission, strategies, and objectives are an unmet need; and
- Identify the most promising global partners, with complementary knowledge and expertise, that could be engaged in the Re-imagining TB Care initiative's activities.

The summary of this exercise can be found at Annex A.

2. Overview

2.1 Challenges and opportunities

Global funding for health systems strengthening was USD 5.8 billion in 2018.[1] Despite these investments, the COVID-19 pandemic has shown that current health systems, including in low- and middle-income countries (LMICs) and emerging markets, including TB affected countries, are **vulnerable (disruption to essential services for TB and across diseases), outdated (use of legacy approaches and solutions), inequitable (not all communities and people, particularly the most marginalized, can access and receive care), and unsustainable (unable to meet the evolving needs of the population).**

The Stop TB Partnership shared new data in March 2021 showing that nine (9) of the **countries with the most TB cases – representing 60% of the global TB burden – saw a drastic decline in diagnosis**

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[1] Institute for Health Metrics and Evaluation (IHME). Financing Global Health 2018: Countries and Programs in Transition. Seattle, WA: IHME, 2019.

and treatment of TB infections in 2020, ranging from 16%-41% (with an average of 23%).[2] Essentially, the drop brought the overall number of people diagnosed and treated for TB in those countries to 2008 levels, a setback of 12 years.

One of the significant outcomes of the COVID-19 pandemic has been the **increased awareness and credibility and accelerated roll-out of digital solutions** as affected people and communities, healthcare providers, country programmes, and health systems needed to identify and rely on new and alternative ways to safely and effectively access and deliver services. For example, in TB, DATs, such as video observed therapy (VOT), have allowed healthcare providers the ability to deliver remote treatment support to TB affected people and communities in their homes during the pandemic. This type of paradigm shift in accessing and delivering services, particularly by leveraging digital solutions, has led to a **growing consensus that the future of healthcare, including in TB and across diseases, needs to go beyond the traditional "brick and mortar" infrastructure and facility-level.**

As such, through the Re-imagining TB Care initiative, together with country and global partners, particularly TB affected people and communities, healthcare providers, and country programmes, aims to **transform *when*, *where*, and *how* care and services are accessed and delivered** for TB and across diseases by leveraging digital solutions.

2.1 Guiding Principles

In order to **provide clear direction and help execute the Re-imagining TB Care initiative's activities, including to make directionally appropriate decisions more quickly and with greater autonomy,** five (5) core values have been developed. They include:

1. Driven by the "hopes and dreams" identified by country partners, particularly the affected people and communities, healthcare providers, and country programmes;
2. Take a multi-disease and a platform approach in how services are accessed and delivered, particularly since many digital solutions have and will have applicability for TB and across diseases;
3. Ensure activities and deliverables are equitable, inclusive, and gender-responsive and help to reduce critical barriers for TB affected people and communities, particularly the most marginalized;
4. Facilitate South-to-South collaboration between country partners; and
5. Coordinate and collaborate with a broad spectrum of country and global partners from across sectors to avoid duplication and maximize synergies.

2.2 Mission, strategies, and objectives

The Re-imagining TB Care initiative's mission aims to **transform *when*, *where*, and *how* services are accessed and delivered** for TB, other lung- and respiratory-based illnesses (e.g., COVID-19, lung cancer, etc.), and TB co-morbidities (e.g., HIV, diabetes, etc.) in TB affected countries by leveraging digital solutions.

To achieve this mission, the three primary strategies will be to:

1. **Improve TB affected people's and communities' experiences with differentiated and integrated care** based on their daily lives, behaviours, and preferences (i.e., how do we make it convenient and easy as possible for them to access services);

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[2] Stop TB Partnership's Media Brief

2. **Catalyze community- and home-based care** (i.e., "neighborhood and doorstep" care) for TB affected people and communities; and

3. **Strengthen the digital and information and communication technology (ICT) ecosystem and infrastructure** in TB affected countries to properly harness the benefits of digital solutions.

And to achieve these strategies, the three objectives will be to:

1. **Identify, source, and prioritize digital solutions**;
2. **Accelerate the roll-out of these prioritized digital solutions**; and
3. **Enhance the existing electronic health record systems (EHR)** by automating, connecting, and/or linking these prioritized digital solutions into these systems.

A diagrammatic summary of the Re-imagining TB Care initiative's mission, strategies, and objectives can be found below.
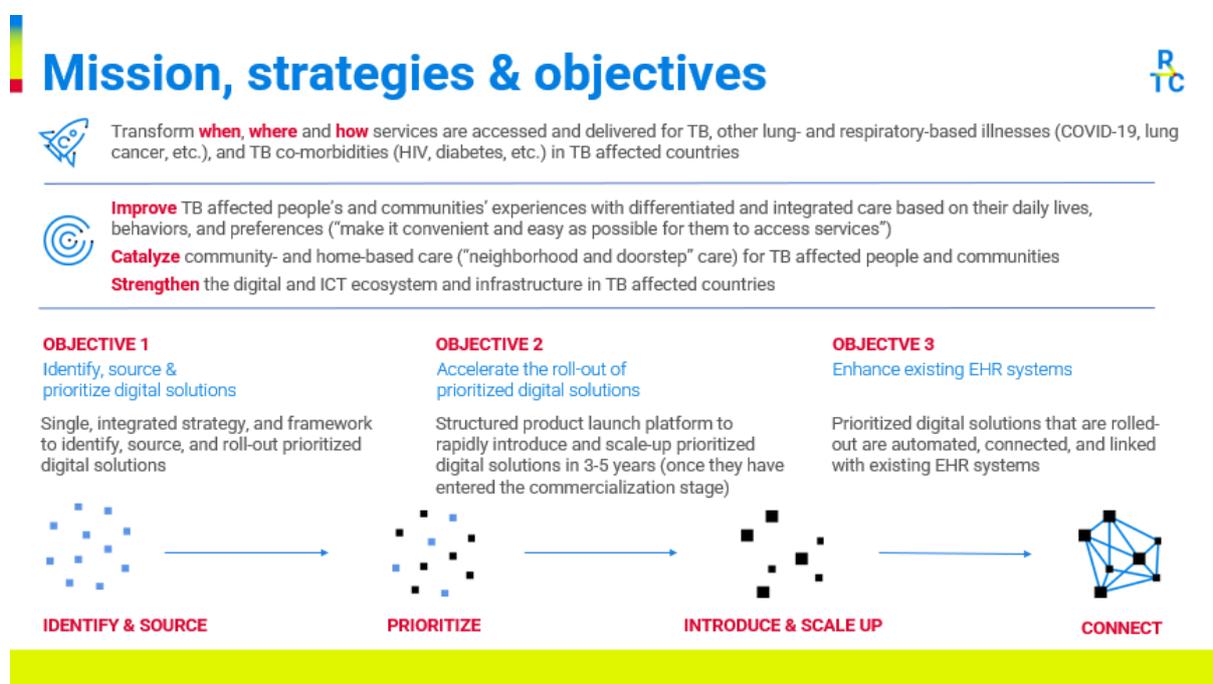
Please note, particularly related to the first objective, the EASI team will be co-organizing with country partners, including TB affected people and communities, healthcare providers, and country programmes, **human centered design workshops and focus group discussions in a small co-hort of TB affected countries to get their current perspectives and experiences, particularly in light of the COVID-19 pandemic**, on how we can make it convenient and easy as possible for them to access and deliver services and the types of digital solutions that could potentially catalyze neighborhood and doorstep care.

3   Objective 1: Identify, source, and prioritize digital solutions

3.1 Introduction

In order to (1) **increase clarity for country and global partners to inform programmatic investment decisions** and (2) **increase clarity for innovators to inform research and development (R&D) and commercialization investment decisions**, a sufficiently coordinated, at the country- and global-level, identification, sourcing, and prioritization of digital solutions is required based on a rigorous

understanding of the real-time need and demand and continuous evaluation of the experiences of TB affected people and communities, healthcare providers, and country programmes across the TB care model.

3.2 What has been achieved (2018-present)

In partnership with the McGill International TB Centre, **four (4) "re-imagined", people-centered TB care models** were conceptualized, including for active TB, latent TB, childhood TB, and TB/HIV, against currently available TB innovations, including digital solutions, to **identify barriers and gaps in services and product solutions**. See https://www.reimaginingtbcare.org/re-imagined-tb-care/.

A high-level **human centered design workshop**, in partnership with IDEO.org, was organized in advance of the 50th Union Conference on Lung Health in October 2019 in Hyderabad, India to **build empathy for TB affected people's and communities' perspectives and experiences in accessing services across the TB care model based on their daily lives, behaviours, and preferences**.

In partnership with The Arcady Group, a **landscape analysis of currently available TB innovations, including digital solutions, and ones coming down the pipeline across the TB care model** were conducted. See https://www.reimaginingtbcare.org/digital-health-tool-kit/

For the optimal commercialization and roll-out of digital solutions, initial prototypes and versions need to be preliminarily assessed based on accuracy, ease of use, and other characteristics. Jointly working together with the Bamenda Center for Health Promotion and Research in Cameroon, and in partnership with TB REACH, the **"Sandbox Network"** was launched. This network will consist of a broad spectrum of country partners, including research organizations and implementing partners, to **conduct a rapid evaluation of digital solutions for TB and across diseases within a three (3) to six (6) month period** to see if these innovations can do what they say they can do or see how far off they are from doing what they say they can do.

3.3 What is next (2021-22)

As part of the Re-imagining TB Care initiative's efforts to identify and source digital solutions that:

- Will improve TB affected communities' and people's experiences with differentiated and integrated care based on their daily lives, behaviours, and preferences (i.e., "make it convenient and easy as possible for them to access services");
- Catalyze community- and home-based care (i.e., "neighborhood and doorstep" care); and
- Can potentially be supported by the Accelerator for Impact (a4i) platform.

a **Re-imagining TB Care Innovation Strategy** will be developed to **provide a single, integrated framework that clearly defines the scope and inclusion/exclusion criteria**.

As part of the strategy's development process, a **Re-imagining TB Care Design Group** will be convened with a broad spectrum of country and global partners, including TB affected people and communities, healthcare providers, and country programmes, to **offer independent and expert guidance**. For example, one of the key inputs already received from WHO's Global TB Programme was the need ensure that the strategy and framework remain flexible due to the rapid changes in the digital solutions landscape.

The Re-imagining TB Care Innovation Strategy development process will also leverage the services of a human centered design studio to jointly work together with the country and global partners, particularly TB affected people and communities, healthcare providers, and country programmes, to develop the initial online survey and then subsequently organize virtual consultations and focus group discussions. The findings from this survey and discussions will serve as the basis for defining the Re-imagining TB Care Innovation Strategy's scope and inclusion/exclusion criteria.

An **online innovation sourcing platform** will be in launched to **identify and source digital solutions,** particularly from small- and medium-enterprises (SMEs) and start-ups, including ones from TB affected countries, that adheres to the Re-imagining TB Care Innovation Strategy.

4   Objective 2: Accelerate the roll-out of prioritized digital solutions

4.1 Introduction

TB and global health is a very complex market composed of an archaic and ad-hoc labyrinth of stages, activities, and country and global partners throughout the product development lifecycle. **Innovators, particularly SMEs and start-ups, including ones from TB affected countries, struggle to cross the two (2) "valleys of death"** – the first is encountered between the R&D and commercialization stages, while the second is encountered between the commercialization and roll-out stages.[3] In order to **increase the pipeline of innovators developing digital solutions for TB and across diseases and for the LMICs and emerging markets** and to **unlock new public-private sector capital to support the further R&D and commercialization of these innovations**, it is necessary to bridge these gaps, particularly as digital solutions enter the commercialization and roll-out stages.

a4i is a structured product launch platform consisting of pre-identified set of critical stages, activities, and key country and global partners to jointly work together in a coordinated effort to accelerate the roll-out of prioritized digital solutions for TB and across diseases in a small co-hort of early adopter countries by providing:

- Fit-for-purpose, public-private sector capital and product launch support to SMEs and start-ups, including ones from TB affected countries, and
- Contextualized technical support to civil society and communities, implementing partners, healthcare providers, and country programmes.

The current and high-level critical stages and activities can be found at https://www.reimaginingtbcare.org/innovator-pathway/ and the platform is in the process of pre-identifying key country and global partners to implement specific activities related to (1) advocacy (raise awareness and credibility) and demand generation (in early adopter countries), (2) preliminary assessment and evidence generation, (3) global- and country-level policy, (4) country demonstration and implementation, (5) market access, (6) scale-up and sustainability, and (7) financing (for SMEs and start-ups).

Please note that a4i will primarily **focus on critical stages and activities as digital solutions enter the commercialization stage**, and jointly work together with key country and global partners, including FIND, WHO's Global TB Programme, Unitaid, and the Global Fund, and in partnership with the CCS4I team and TB REACH, to implement specific activities.

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[3] https://www.weforum.org/agenda/2018/09/tb-is-the-worlds-deadliest-infectious-disease-we-have-one-shot-to-stop-it/

4.2 What has been achieved (2018-present)

In partnership with The Arcady Group, a4i **mapped various critical stages, activities, and pre-identified key country and global partners,** including detailed, country-specific implementation pathways for digital solutions in five (5) countries (e.g., Myanmar, Nigeria, Philippines, Vietnam, and Zimbabwe). See https://www.reimaginingtbcare.org/country-tb-profiles/.

The Stop TB Partnership signed a **partnership agreement with Bamboo Capital Partners**, an impact investing platform to co-launch the HEAL fund. As part of this agreement, both parties will focus on sourcing, financing, and rolling-out digital solutions for TB and across communicable and non-communicable diseases. The fund, a **US$ 75 million blended finance investment vehicle,** will leverage US$ 15 million in catalytic funding to incentivize and unlock US$ 60 million of private institutional investment capital. See http://www.stoptb.org/news/stories/2021/ns21_024.html.

A total of **nine (9) Virtual Innovation Spotlights (VIS) organized** between April 2020-June 2021 to:

- Strengthen the feedback loop between country and global partners, including civil society and communities, and innovators developing digital solutions;
- Increase awareness and credibility of innovations that are currently available and/or coming down the pipeline; and
- Mitigate interruptions in TB services during the COVID-19 pandemic by leveraging digital solutions that are currently available.

On average, there were 150+ attendees per event (a total of 1350+ attendees across all events). Additional information about the VIS can be found at http://www.stoptb.org/siif/vis.asp and the innovators' presentations and recordings can be found at http://www.stoptb.org/siif/resources/default.asp.

4.3 What is next (2021-22)

With the planned funding from KOICA in 2022, and together with key country and global partners, in partnership with the CCS4I team and TB REACH, a4i will **support one (1) to two (2) digital solutions** identified by the Re-imagining TB Care Innovation Strategy through the structured product launch platform in a small co-hort of early adopter countries.

Similar to the Stop TB Partnership's partnership agreement with Bamboo Capital Partners, the organization is exploring **potential opportunities with other impact investment firms and funds.**

5   Goal 3: Enhance existing EHR systems by automating, connecting, and/or linking prioritized digital solutions into these systems

5.1 Introduction

While there has been an increased credibility, awareness, and roll-out of digital solutions, particularly due to the COVID-19 pandemic, in TB affected countries, it is critical that as these innovations are rolled-out, they are **connected (i.e., integrated and interoperable) into an EHR system** in order to **automate how medical and treatment data and history is collected and inputted** and **link how this information is shared across the various the healthcare providers** who are involved in delivering services to TB affected people and communities.

The Re-imagining TB Care initiative, as part of its efforts to introduce and scale-up prioritized digital solutions, has being jointly working together with various key country and global partners, including the Global Fund and their strategic initiatives on data teams, and in partnership with the CCS4I team, in a small co-hort of countries to **increase systems functionality**, including agile response to changing circumstances, reduction in process time, avoidance of process shutdowns, etc. and **improve data analytics and monitoring systems** to assist in decision-making, including for data surveillance, and to **develop targeted interventions**.

5.2 What has been achieved (2018-present)

The Stop TB Partnership, Microsoft Research, and the Global Fund **co-developed the "Mapping Technology Landscape of National TB Programs" report to assess and understand the current DHTs and ICT platforms being leveraged across the TB care model in 13 TB affected countries** (e.g., Bangladesh, Democratic Republic of Congo, India, Indonesia, Kenya, Mozambique, Nigeria, Philippines, South Africa, Tanzania, Uganda, Ukraine, and Zambia). This report, which will be launched at the 52nd Union World Conference on Lung Health in October 2021, will share high-level findings and recommendations, including identifying gaps and priorities related to further strengthening EHR systems in some of the TB affected countries. The "Forward" of the "Mapping Technology Landscape of National TB Programs" report can be found at Annex B.

The EASI team **launched a call for proposals (CFP) to enhance existing EHR systems** in TB affected countries and to identify a small co-hort of country partners and projects (provide up to two (2) to four (4) grants at a total of US$ 150,000 maximum each) which would:

- **Automate** (further improve and/or increase) existing EHR systems;
- **Connect** (further integrate and make interoperable) existing EHR systems with current digital solutions that have already received WHO's guidance/recommendation and/or are in the process of being rolled-out by country programmes, including but not limited to:
  - CAD solutions;
  - Rapid and automated molecular tests;
  - DATs; and/or
  - Community led-monitoring platforms; and/or
- **Link** existing EHR systems with logistical management information systems, such as drug management systems, financial management systems, etc.

A total of **12 proposals were received from Burundi, Cambodia, China, Haiti, India, Pakistan, Philippines, South Africa, Uganda, and Vietnam** and the final project selections will be made in early October, with project implementation to commence later that month for approximately a one-year period.

Please note that there have already been preliminary discussions with various global partners, including the Bill & Melinda Gates Foundation, Global Fund, and WHO's Global TB Programme to ensure this CFP is **catalytically aligned and synergistic with these organization's current and future work related to data systems in TB affected countries**.

5.3 What is next (2021-22)

The EASI team will be jointly working together with the selected country partners and projects to **implement their activities to enhance existing EHR systems** in two (2) to four (4) countries and also be jointly working with the Global Fund and their strategic initiative on data teams, in partnership with

the CCS4I team, to potentially **scale the selected projects to enhance existing EHR systems** in TB affected countries.

6   Financial implications

United States Agency for International Development's overall funding to the Stop TB Partnership and specific funding from **Chevron Corporation** and **United States Centers for Disease Control and Prevention,** as part of its multi-year grant to the organization, contributed to the development of the Re-imagining TB Care initiative.

Additional funding for the Re-imagining TB Care initiative will be provided by the **Korea International Cooperation Agency (KOICA)**, particularly related to a4i and the further operationalization of a structured product launch platform, as part of its multi-year grant with the Stop TB Partnership, in 2022.

7   Measurement and evaluation framework

The EASI team is updating the Re-imagining TB Care initiative's measurement and evaluation (M&E) framework to be comprehensive with a broad set of indicators across its key pillars, which is in alignment with the various grant agreements. This framework will be shared with the Board at its 35th Board Meeting.

8   Risk management and mitigation strategies framework

The EASI team will be developing the Re-imagining TB Care initiative's risk management framework and mitigation strategy, which is in alignment with the various grant agreements. This framework will be shared with the Board at its 35th Board Meeting.

Section C: Board action

The Board is requested to provide guidance and inputs on the overall Re-imagining TB Care initiative and the implementation of its activities.

Section D: Annexes

Annex A: Summary of landscaping of digital health technologies initiatives across various companies and organizations

Annex B: Foreward of the "Mapping the Technology Landscape of National TB Programs" report