

TB DIAH

TUBERCULOSIS DATA, IMPACT ASSESSMENT
AND COMMUNICATIONS HUB

November 2, 2023



Practically everyone is talking about artificial intelligence (AI), but how practical is it?

Exploring the real-world uses of AI in designing and developing TB M&E training

TB DIAH

TUBERCULOSIS DATA, IMPACT ASSESSMENT
AND COMMUNICATIONS HUB

- Part of the Global Accelerator to End TB
- Global, five-year (2018-2025) associate award, \$36M cooperative agreement
- Small team of M&E and TB experts working to clarify TB data in way that helps USAID monitor its TB investments in its TB priority countries
- Helps countries use data to share their story



What does TB DIAH do?



What does TB DIAH do?



PBMEF

Performance-based M&E Framework

- Contains the 10 core and extended indicators to help Missions track progress against TB targets and manage USAID's TB investments—all in one place



MESSA

M&E and Surveillance Systems Assessment

- An overview of M&E and surveillance systems in each USAID TB priority country



ARC

Assessment of Data Collection, Reporting and Analysis Capacity

- Part of the PBMEF
- Measures a country's capacity to collect, report, and analyze PBMEF indicators



STEP

Surveillance System Strengthening Plan

- Systematic and multi-faceted assessment of a country's TB M&E and surveillance system
- Identifies strengths and gaps across the system, examines the quality of the data, and develops the implementation of a costed action plan



QTSA

Quality of TB Services Assessment

- Provides periodic data to inform NTPs, USAID missions, and other stakeholders of the current state of quality of TB care and what strategic investments and actions may be needed to improve TB services

What does TB DIAH do?



D2AC

TB Data-to-Action Continuum

- Measures the progress of countries as they work toward improving their TB M&E and surveillance systems



COEs

Centers of Excellence

- Establish Centers of Excellence in three countries in Asia, Central Europe, and Africa to test and model best practices in TB M&E and surveillance



NTPW

National TB Programs Websites

- Work with priority countries' NTPs to adapt their websites and increase their transparency scores using the Stop TB Partnership's Governance of TB Programs criteria



TBDIAH.org

TBDIAH.org - Data Hub and Repository

- A one-stop shop website offering public and secure work areas to support USAID TB program managers, technical advisors, and country stakeholders with data analysis and reporting, and access to tools, resources, and guidance to contextualize and apply data to their programming



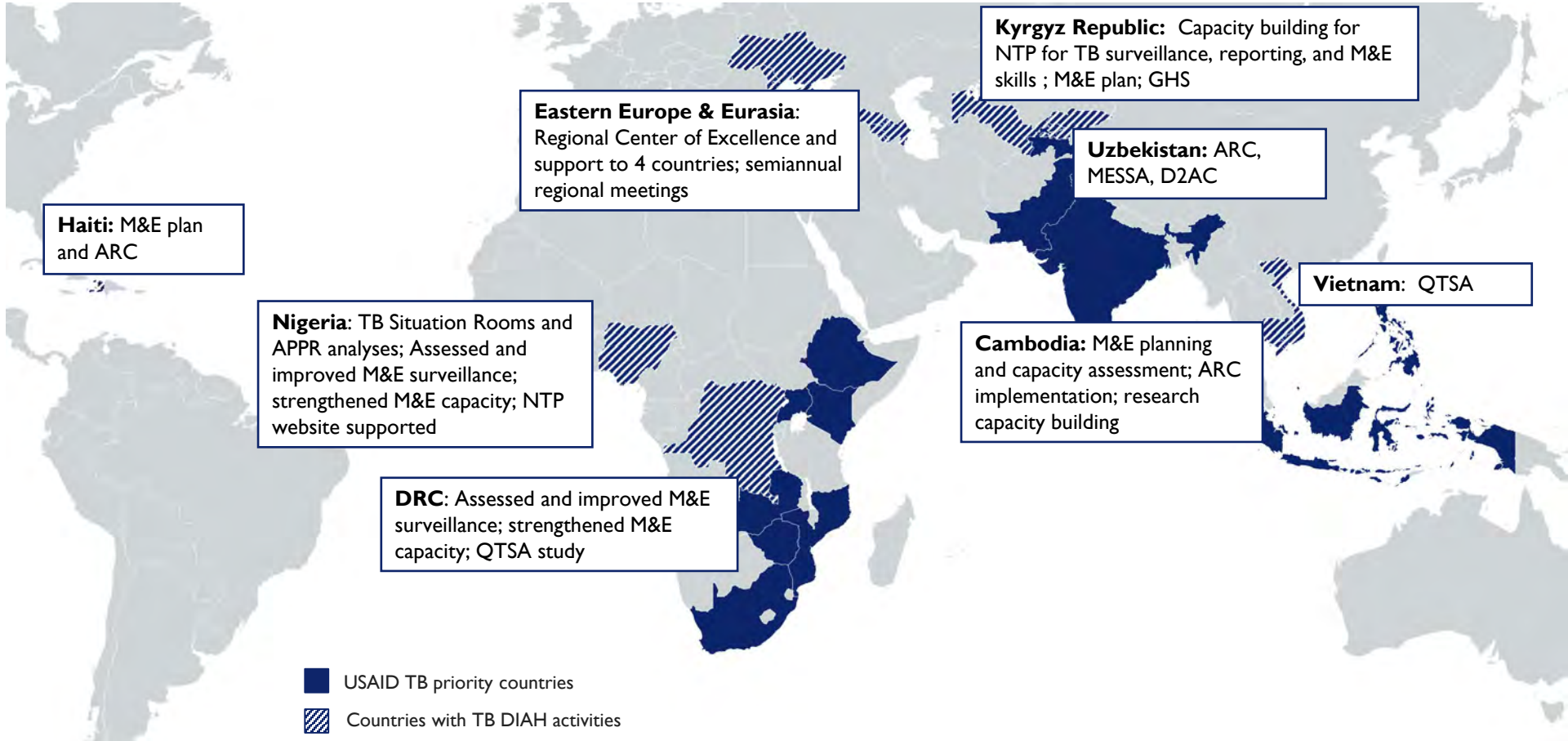
E-Learning

E-Learning – training.tbdiah.org

- Online courses for frontline workers, community health staff and in TB Contact Investigation, Finding cases among those living with HIV, and TB Monitoring & Evaluation

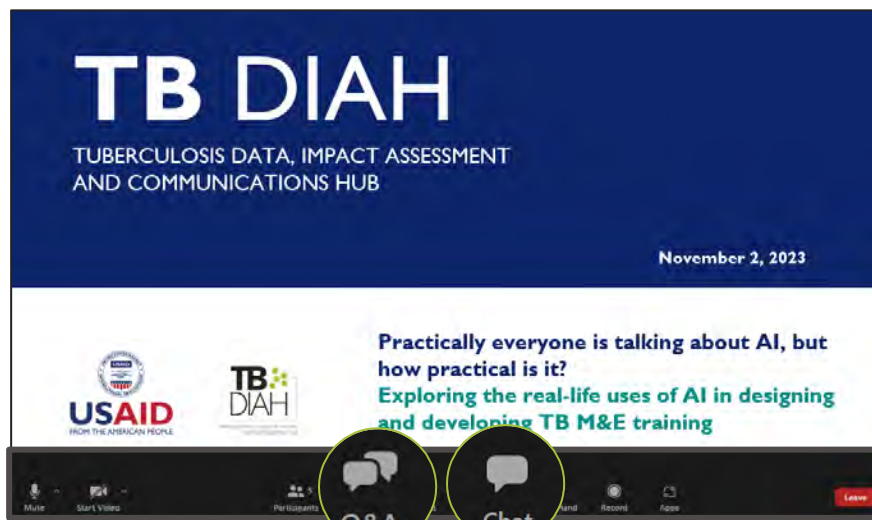
WORK STREAMS

Where does TB DIAH work?





WELCOME & INTRODUCTIONS



Please use the **Q&A** for all questions.

Please tell us who you are and where you're from in the chat.



Questions will be addressed during and at the end of the webinar.






The webinar is being recorded and a link to the recording and presentation will be shared with all attendees and registrants tomorrow by a Zoom link and email.

TODAY'S AGENDA

2 November 2023

 1.5 hours

- ✓ Welcome & Introductions
-  Interactive Poll
- ✓ What is Generative AI?
- ✓ The Possibilities: Using AI in each step of the e-learning/training design process
-  Interactive Poll
- ✓ The Potential Pitfalls when using AI
-  Showcasing MELVIN: TB M&E Chatbot
- ✓ Wrap Up/Q&A

Practically everyone is talking about AI, but how practical is it?

**EXPLORING THE REAL-LIFE USES OF AI IN
DESIGNING AND DEVELOPING TB M&E TRAINING**



Stephanie Mullen



Rebecca Oser



Margie Joyce



Alexander Asatiani

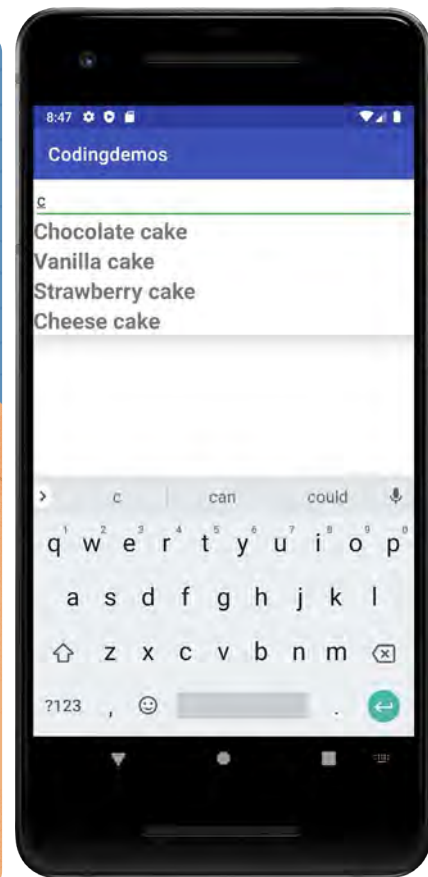
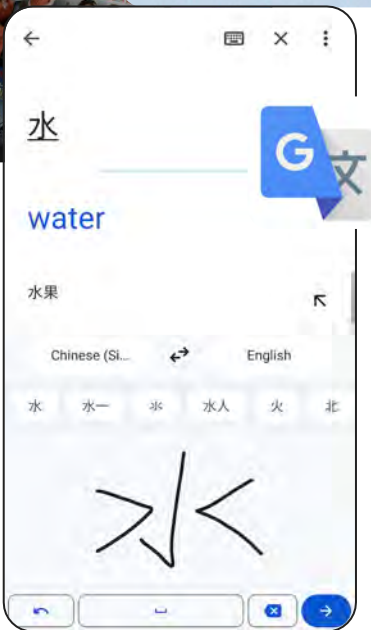
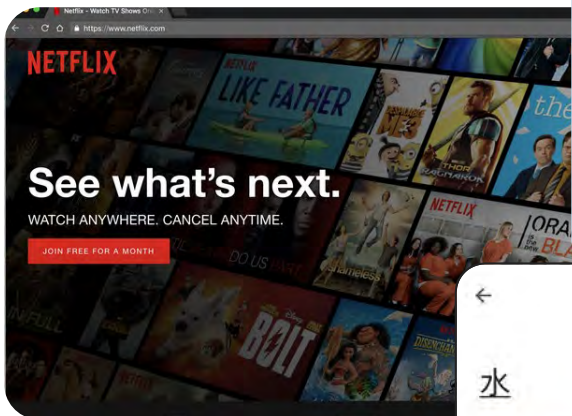


Interactive Poll

How do you feel about the rapid advancements in AI?

-  Excited
-  Interested
-  Neutral
-  Cautious
-  Worried
-  Sad

Examples of AI



AI and the Future

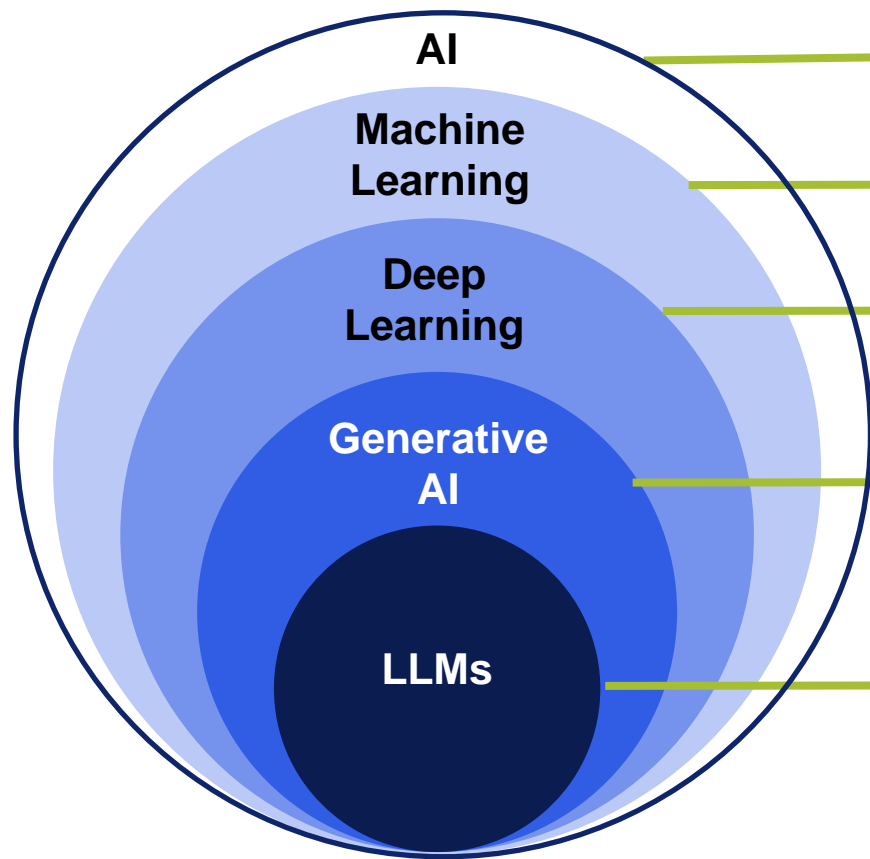


Illustration credit: [Jinu Varghese](#)

“AI will bring about a more profound shift in human life than electricity or Promethean fire.”

Sundar Pichai, Google CEO

What Do We Mean by AI?



Artificial Intelligence: Software that mimics the ways that humans think to perform complex tasks

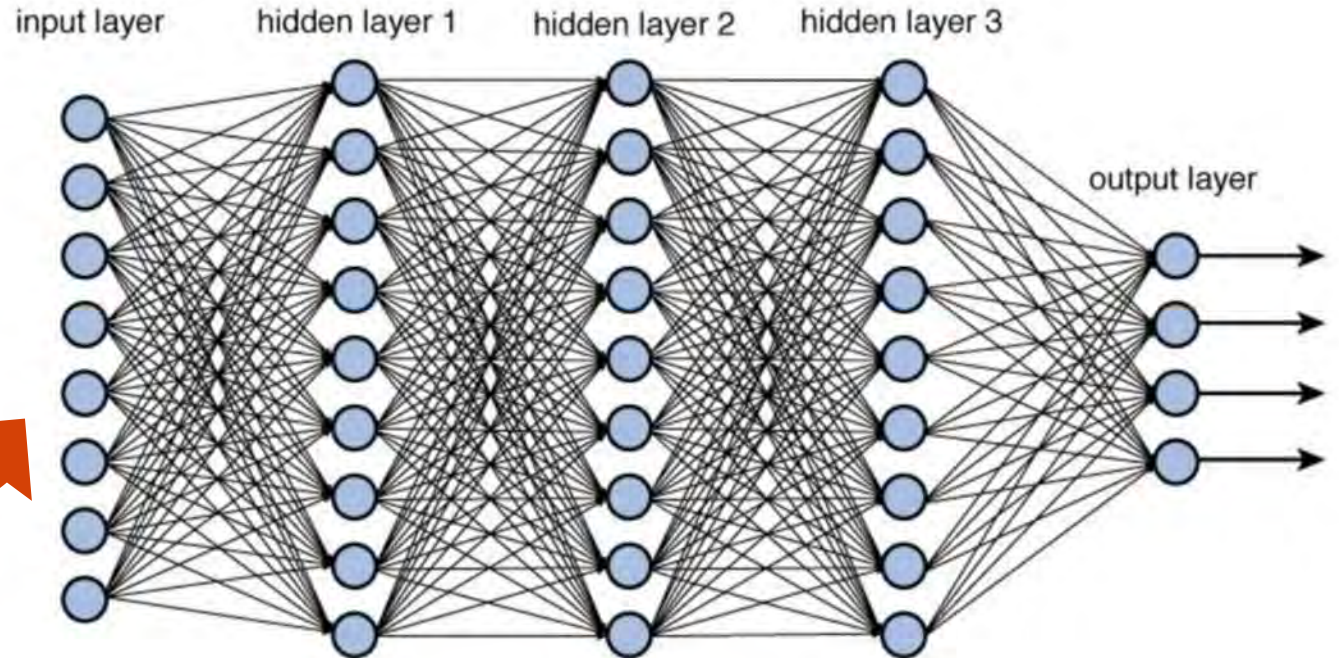
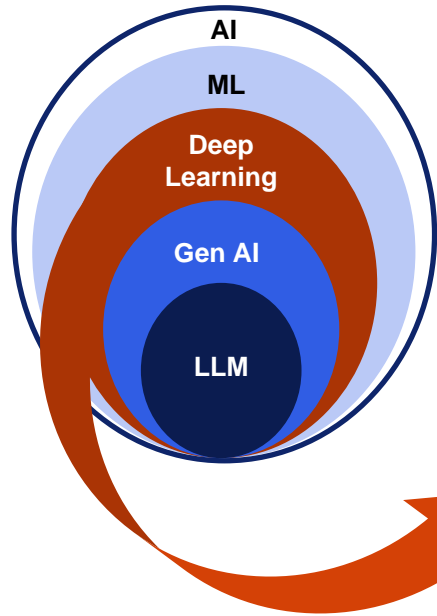
Machine Learning: A type of AI that uses data to make predictions and recommendations

Deep Learning: A type of machine learning that uses a specific type of algorithm

Generative AI: A type of deep learning that can produce new content like text, images, videos, audio and synthetic data

Large Language Models: A type of generative AI trained on massive amounts of text data

Digging into Deep Learning



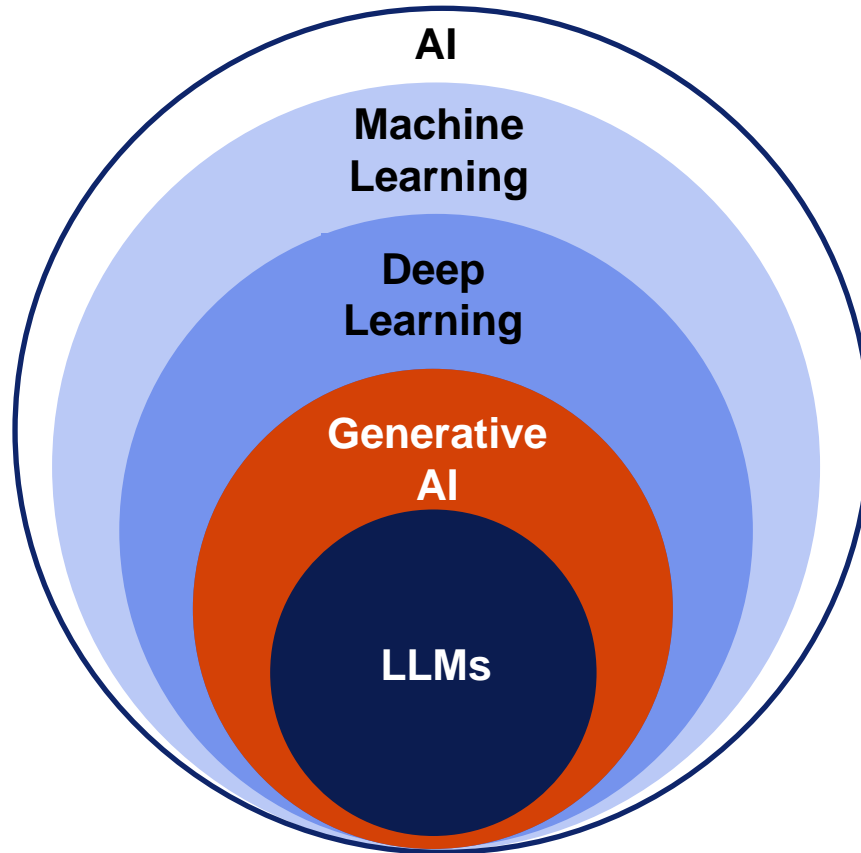
Deep network architecture with multiple layers

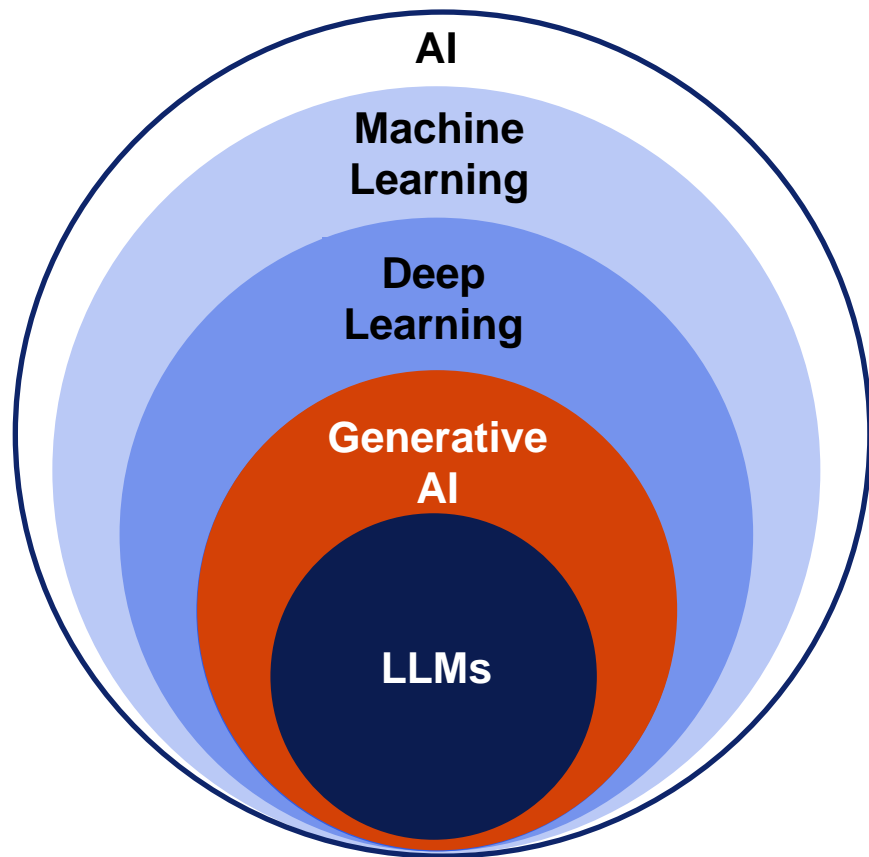
Source: <https://towardsdatascience.com/training-deep-neural-networks-9fdb1964b964>

I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO.



A Closer Look at Generative AI





Source: <https://depositphotos.com/>

“ChatGPT is as fundamental an advance as the personal computer or the internet.”

Bill Gates, co-founder Microsoft, philanthropist

Training Computation Increases; AI Becomes More Powerful

Shown on the vertical axis is the training computation that was used to train the AI systems.

10 billion petaFLOP

Computation is measured in floating point operations (FLOP). One FLOP is equivalent to one addition, subtraction, multiplication, or division of two decimal numbers.

100 million petaFLOP

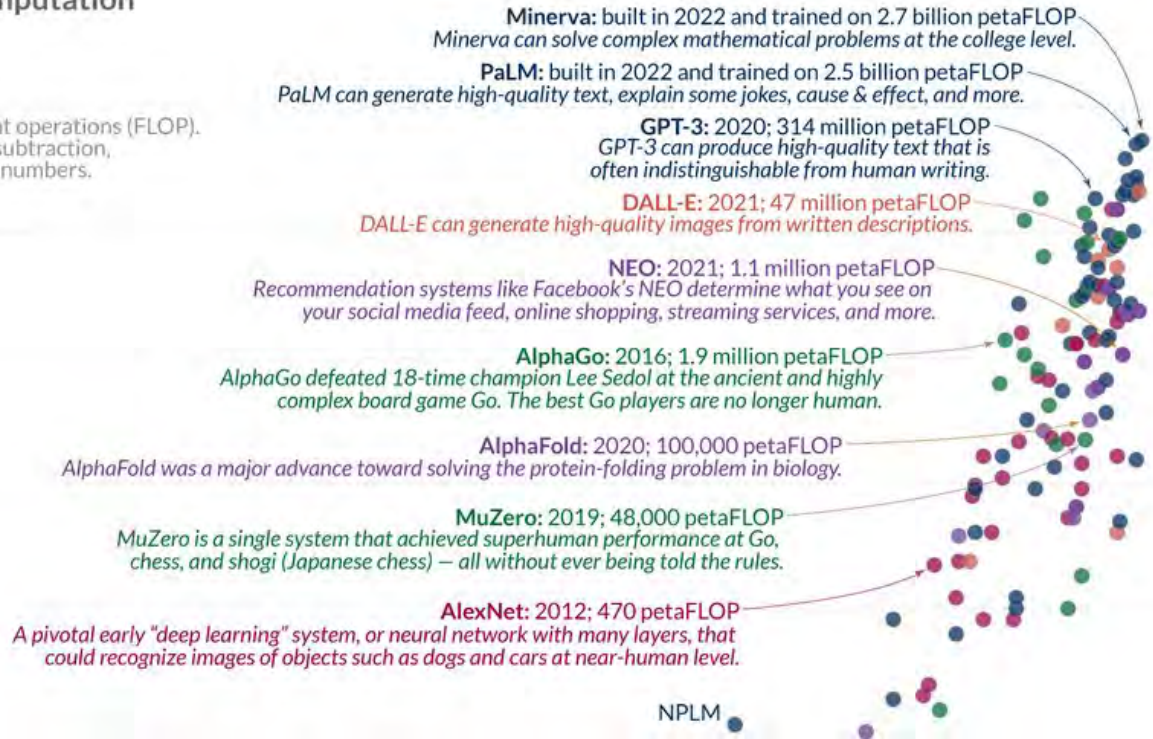
The data is shown on a logarithmic scale, so that from each grid-line to the next it shows a 100-fold increase in training computation.

1 million petaFLOP

10,000 petaFLOP

100 petaFLOP

1 petaFLOP = 1 quadrillion FLOP



The color indicates the domain of the AI system: ● Vision ● Games ● Drawing ● Language ● Other

Source: <https://ourworldindata.org/brief-history-of-ai>



Interactive Poll

Do you use AI tools, like Chat GPT,
in your work?

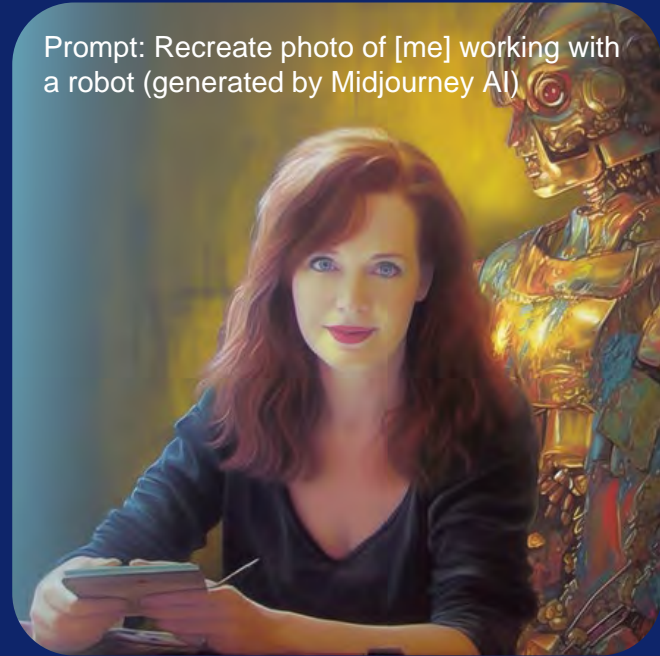
- Yes
- No
- Not sure



Let's get practical!

Using AI to design and develop TB M&E training

Prompt: Recreate photo of [me] working with a robot (generated by Midjourney AI)



Using AI to help develop a TB M&E e-learning course

How to address challenges identified in the design of our existing e-learning courses

- ✓ Empowering people to build low-cost learning materials (localization)
- ✓ Supplementing available instructional design capacity
- ✓ Ensuring mobile first design (65% users accessing course on a phone)
- ✓ Balancing the high demand and value of translation and narration services with the high costs (time and \$)
- ✓ Compiling evaluation data in multiple languages
- ✓ Providing technical support to learners who do not speak English
- ✓ Developing high-quality visual design, interactivity and videos on a budget

Using Generative AI to support design & development process

Research Assistant

Voice Over
Talent

User Data
Analyst

Translator

Course
Illustrator

JavaScript
Developer



Putting AI to work in the ADDIE process

ANALYZE



ChatGPT (free & \$)



Google Bard (free)



Human (\$\$\$)

DEVELOP



Github + Chat GPT



Github CoPilot (\$)



Articulate Rise e-learning (\$\$)



Artflow Video (\$)

DESIGN



MidJourney (\$)



Play HT/Eleven Lab (\$)



Adobe Firefly (\$)



Chat GPT +
Hemingway Editor

IMPLEMENT



DeepL



Human (\$\$\$)

EVALUATE



Chat GPT



DeepL

Analysis tasks:

- ✓ Research/read documentation from USAID, WHO, TB DIAH
- ✓ Speak to subject matter experts
- ✓ Crosswalk content themes across existing TB M&E courses
- ✓ Review and synthesize long documents
- ✓ Compile and synthesize user feedback in multiple languages

ANALYZE



ChatGPT (free & \$)



Google Bard (free)

With the power of using **AI as a research assistant:**

- ✓ Quickly get up to speed on terminology and basic facts
- ✓ Synthesize long, complicated documents
- ✓ Overcome writer's block
- ✓ Rapidly translate and synthesize user feedback in multiple languages

GPT-3.5 GPT-4

ChatGPT PLUS

Explain nostalgia

to a kindergartener

Help me pick

an outfit that will look good on camera

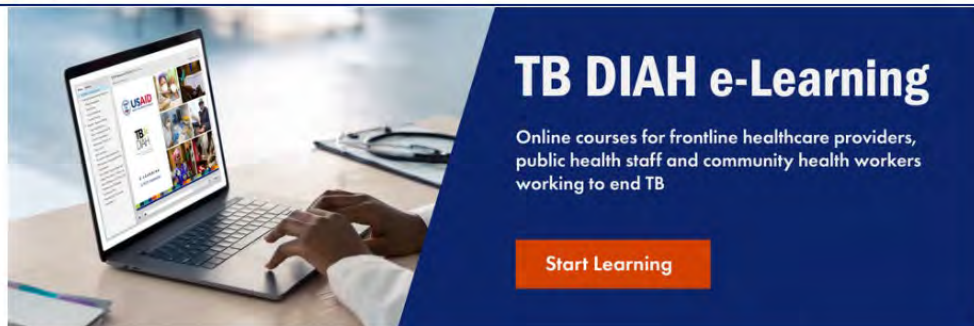
Tell me a fun fact

about the Roman Empire

Show me a code snippet

of a website's sticky header

Send a message



Available Courses

The following courses will be available in English and translated into French, Portuguese, and Russian.



TB Contact Investigation for Frontline Workers

English Portuguese Français Русский



Finding TB Cases among People Living with HIV

English Portuguese Français Русский

First Time Here?

Create a new user account, then login and enroll into a course.

[Create New Account](#)

For help, view the [site registration guide](#)

Login

Username

Password

Remember username

[Log in](#)

[Create new account](#)

[Lost password?](#)

Need support?

Contact us at eflearning@tbdiah.org

TBCI English e-Course Report (2023)

Responses were synthesized using Chat GPT-4 (<https://chat.openai.com/>)

COURSE EVALUATION RESPONSES (ALL USERS)

Of the **330** learners who completed the course survey:

STRENGTHS

What did you like most about the course? What aspects of it contributed the most to helping you learn the content?

Comprehensive and Clear Content: The course provides precise, clear, and enlightening information about TB, its treatment and preventive measures. Many found value in the details, from the basics of TB Contact Investigation to its advanced modules. The distinction between TBI and TB disease, the infectious period calculation, and the regimen in TB treatment were specifically appreciated.

Interactive and Engaging Learning Experience: The interactivity of the course—audiovisual presentations, engaging graphics, and quizzes after each module—helped keep users engaged. The course's design, which requires full attention for progression and offers breaks, also contributed to this engagement.

Structured and Sequential Learning: The course is organized systematically into multiple modules, ensuring step-by-step learning. Users appreciated the sequence in which the modules were presented and the need to complete one module before proceeding to the next.

Effective Communication and Presentation: Several feedback points highlight the course's effective communication skills, from the clear audio to the understandable language used. The mode of presentation, and the way the narrator engages with the audience were particularly noted.

User-Friendly Interface and Navigation: Users found the course's interface to be user-friendly, with easy navigation. Features like being able to resume from where one left off instead of restarting and having visual notes were highlighted.

Educational Impact and Empowerment: Many users expressed that the course broadened their knowledge about TB

What did you like least about the course? What aspects of it were confusing, frustrating, or made it difficult to learn the content?

More than half of the comments were positive. 182 reviewers mentioned: "Nothing or N/A." "All was good, well-explained; or variations of: "I loved every aspect of the course."

The following were topics that certain reviewers liked the least:

- Calculation of infection period: 10 mentions
- Confusing concepts (MDR-TB, XDR-TB, monitoring and evaluation, etc.): 27 mentions
- Ethical considerations: 7 mentions
- Other content related issues (e.g., denominators, patient forms, etc.): 9 mentions
- Internet/network issues: 5 mention
- Navigation between modules: 8 mention
- Audio/Video issues (sound quality, no subtitles, etc.): 6 mentions
- Technical glitches (not able to move to next course, not showing module completion, etc.): 6 mention
- Downloading issues (materials, video, handouts): 4 mentions
- Time-consuming/lengthy content: 10 mentions
- Repetitive content: 2 mentions
- Suggestions for improvements (skip module, shorten courses): 3 mentions
- Lack of animations, more text: 1 mention
- Presentation issues (e.g., video size for tablets): 1 mention
- Multiple type questions or tricky questions: 3 mentions
- Language barrier/difficulty: 2 mentions
- Communication skills/aspect: 4 mentions
- Module on communication: 1 mention

SUGGESTIONS & AREAS FOR IMPROVEMENT



TB DIAH e-Learning

Online courses for frontline healthcare providers, public health staff and community health workers working to end TB

[Start Learning](#)

Available Courses

The following courses will be available in English and translated into French, Portuguese, and Russian.

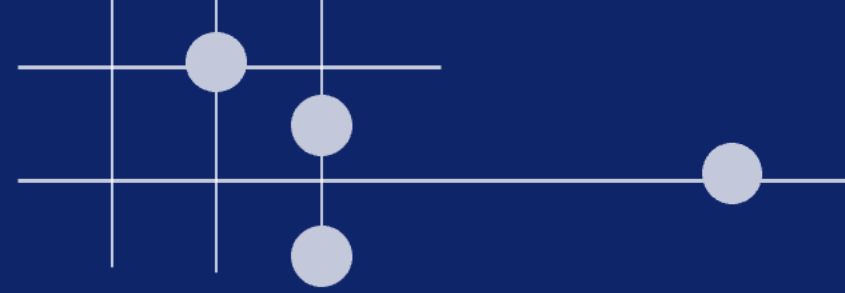


Need Support?

Contact us at elearning@tbdiiah.org

Using Mobile?

Download the Moodle Mobile app to work offline. Print/View the [Mobile App User Guide](#) for guidance



Design & Develop

Design & Development Tasks:

- ✓ Write and rewrite content to fit appropriate reading level
- ✓ Hire an illustrator
- ✓ Hire voice over talent
- ✓ Hire a videographer
- ✓ Work with a programmer to add interactivity

DESIGN



MidJourney (\$)



Adobe Firefly (\$)



Play HT/Eleven Lab (\$)



Chat GPT + Hemingway Editor

DEVELOP



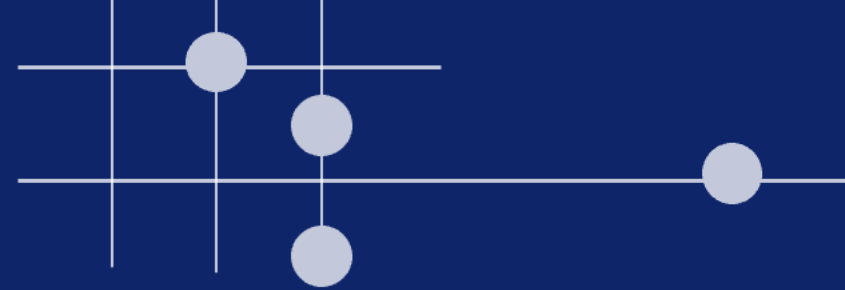
Github + Chat GPT
Github CoPilot (\$)



Articulate Rise e-learning (\$\$)



Artflow Video (\$)



Content

Bold Italic H1 H2 H3 Quote Bullets Numbers Link

TBCI M&E involves the process of collecting routine data, the reporting of these data, the analysis of the data, and then the use of the data to improve programs.

Evaluation is the process of systematically and objectively assessing the relevance, effectiveness, and impact of activities in light of their objectives. Evaluation uses monitoring data to enable this assessment.

Evaluation can serve as an early warning system to detect whether activities are being carried out as planned. If they are not, you can take measures to correct problems and rework activities as needed to make them more effective.

M&E of TBCI programs helps track the identification of people with TB infection or TB disease, their treatment initiation and adherence, and TBCI's contribution towards reducing the spread of TB cases.

Write Edit

Hemingway
Editor

Readability

Grade 12

OK. Aim for 9.

Words: 131

Show More ▾

2 adverbs, meeting the goal of 2 or fewer.

0 uses of passive voice. Nice work.

0 phrases have simpler alternatives.

2 of 7 sentences are hard to read.

3 of 7 sentences are very hard to read.



⚡ GPT-3.5 ✨ GPT-4

ChatGPT **PLUS**

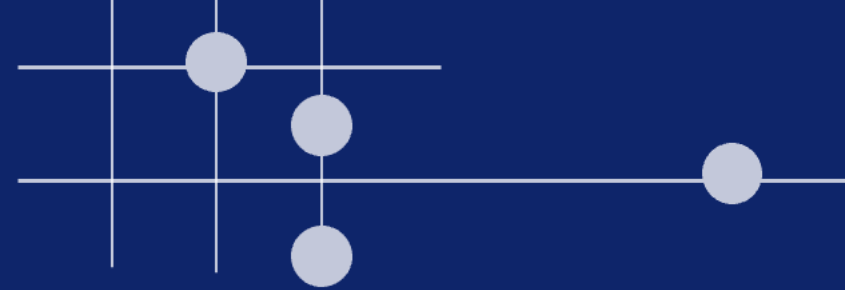
Give me ideas
for what to do with my kids' art

Plan a tour
for architectural photography in Barcelona

Write a SQL query
'that adds a "status" column to an "orders" table'

Suggest fun activities
to do indoors with my high-energy dog

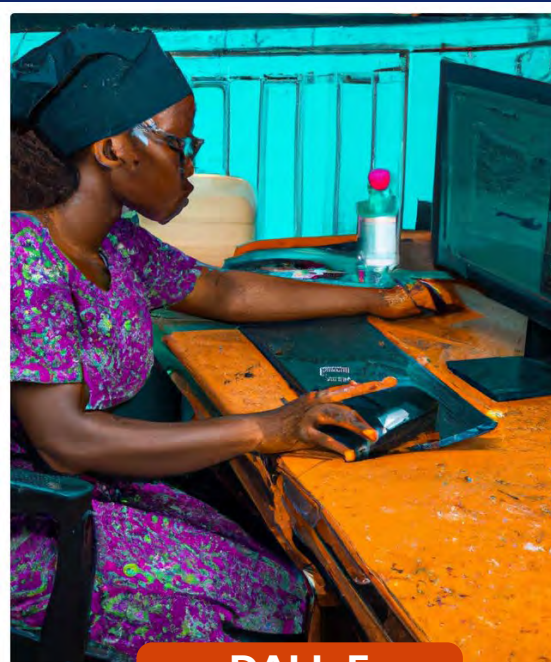
Send a message ➤



Illustrations

DALL-E vs. Midjourney vs. Adobe Firefly

You never step in the same river twice



DALL-E
August 2022



Midjourney
May 2023



Adobe Firefly
November 2023

Offers a free and premium plan



Prompt

33 year old woman from Nigeria entering data into a computer

Clear style

Digital art x

Suggestions

Refresh



own reference image

▼ Effects

- All Popular Movements Themes
Techniques Effects Materials Concepts



3d



Anime



Cartoon



Cinematic



Comic book



Concept art



Cyber matrix



Digital art



Flat design



Geometric



Glassmorphism



Glitch graphic





Hallucinations



https://s.mj.run/c_80gxptNrs make into illustration

Midjourney Bot illustration of a male Vietnamese, global health data

Midjourney Bot 07/17/2023 1:27 PM

illustration of a male Vietnamese, global health data analyst looking at computer screen, black line drawing, cartoon, perspective, graphic design style, simple, high resolution



Vary (Strong)

Vary (Subtle)

Zoom Out 2x

Zoom Out 1.5x

Custom Zoom

Midjourney Bot illustration of a female Kenyan global health data analyst looking at computer screen,

Midjourney Bot 07/17/2023 11:18 AM

illustration of a female Kenyan global health data analyst looking at computer screen, black line drawing, cartoon, perspective, graphic design style, simple, high resolution - Image #4 @Margot J



Vary (Strong)

Vary (Subtle)

Zoom Out 2x

Zoom Out 1.5x

Custom Zoom



Web







MODULE 1: TB M&E: An Overview

🕒 **Time to Complete:** 10 minutes

Topics Covered: Global TB strategies and targets, M&E frameworks and how patient pathways inform TB performance indicators. **New to TB?** be sure to check out our mini-module on **Basic Epidemiology of TB** and download the latest **TB Case Definitions (PDF)**

[VIEW MODULE](#)



MODULE 2: Using a Performance-Based M&E Framework to Strengthen TB Programs

🕒 **Time to Complete:** 20 minutes

Topics Covered: Components of USAID's performance-based M&E frameworks, deep dive into 10 core indicators, indicators cascades

[VIEW MODULE](#)



MODULE: 3: Data Quality, Analysis, and Interpretation

🕒 **Time to Complete:** 45 minutes

Topics Covered: Components of data quality, data analysis, cascade analysis, root cause analysis



Percent Bacteriologically Confirmed



Importance:

As countries intensify efforts to improve TB diagnosis and treatment and close incidence-notification gaps, the proportion of notified cases that are bacteriologically confirmed needs to be monitored to ensure that people are correctly diagnosed and started on the most effective treatment regimen as early as possible.

This **indicator measures a program's capacity to detect TB accurately and rapidly using new diagnostics** and to increase the percentage of cases confirmed bacteriologically by scaling up the use of diagnostics that are more sensitive than smear microscopy.

Specifically, USAID is supporting introduction, scale-up, and quality implementation of new and existing diagnostic methods including access to mWRDs in countries that receive TB funding.

← BACK

NEXT →



What do you think?

From an M&E perspective, what do you see as the challenges and opportunities in your country (or the country where you work) in achieving these global targets to end TB?

[Click here to answer!](#)

In this course, we will explore how using a performance-based M&E framework can help meet these global targets.

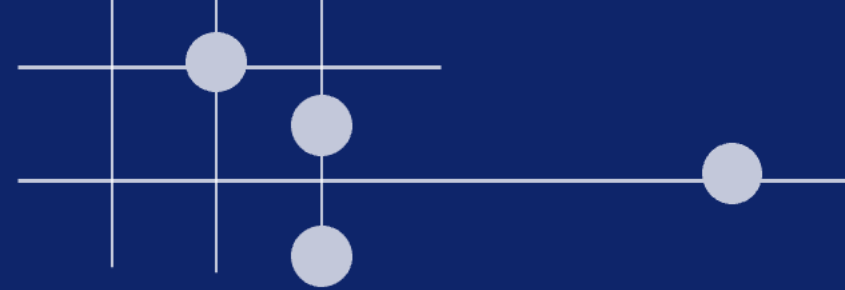
But first, let's review WHO's and USAID strategies to end TB



Illustration of Southeast Asian doctor providing pills, black line drawing, color, transparent background, cartoon, perspective, graphic design style, simple, high resolution



Illustration of Xpert MTB/RIF Ultra machine to diagnose pulmonary TB



Video


DRAFT CONCEPT

Search...

Audio Gallery Project Assets Uploads

- George Voiceover
- Charlotte Voiceover
- Madison Voiceover
- Nia Voiceover
- Ethan Voiceover
- Deborah Voiceover

Scene Character Dialogue Effects

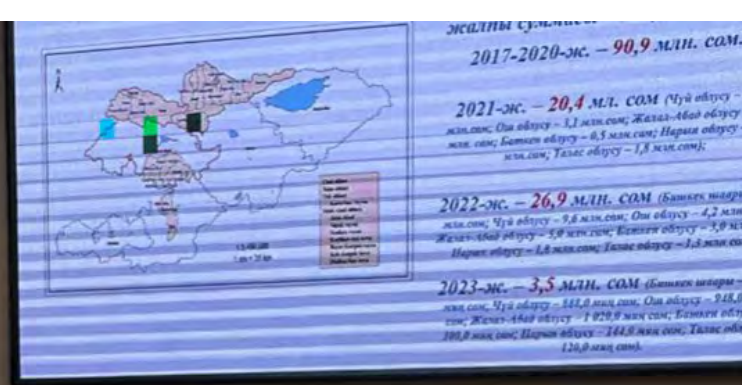


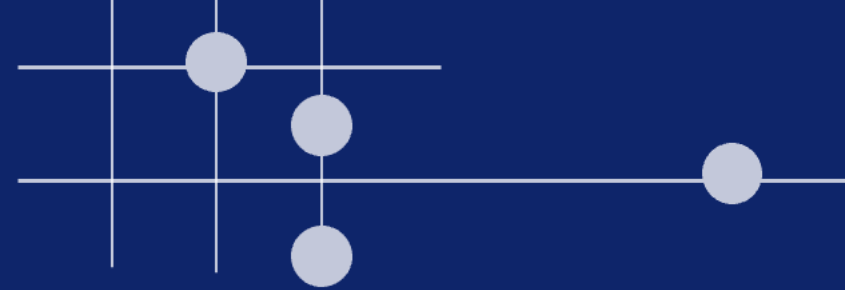
Shot 1 of 1

Enter Dialogue

Sophia remembers that during the national review meeting, they were given a target for TB case notification. They compare their data with that target and think, We are not doing that badly. We are just 15 percent below the target. But, other provinces are also below the national target. They wonder, Why is our national manager still saying that our province is not doing well?

Preview Voice 378/1000





Voice Over

AI Voice Cloning with Unparalleled Quality

Clone high-quality voices that are 99% accurate to their real human voices.

No need for expensive equipment or complicated software. Perfect for content creators, podcasters, and businesses looking to add a personal touch to their audio projects.

[Clone a voice now](#)[Contact Sales](#)

Click on a voice to hear it



Elon



Tom



Neil D. Tyson



The Rock



Offerman



Obama



JFK



Joe



Kevin Hart



Voice samples are only for demonstration purpose

Listen to our latest AI podcast episode to get a feel of what's possible



Getting Started



02:52

Don't have time to read? Listen here. (Generated [Eleven Labs AI](#))

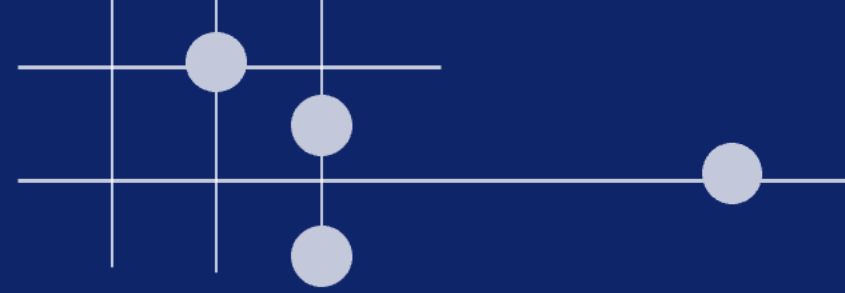
DID YOU KNOW?

TB claims more lives each year than HIV and malaria combined.



Until the emergence of COVID-19, the bacterium that causes tuberculosis (TB) was described as “the most destructive pathogen on the planet.” It still kills more than

4,300 people each day. (WHO Global TB Report, 2022)



Tech Support



Tuberculosis Monitoring, Evaluation and Surveillance

Using a Performance-based Monitoring and Evaluation Framework to Strengthen Tuberculosis Programming

Course Description

This online learning experience is designed for dedicated professionals working to end tuberculosis (TB) in their countries. It requires a basic understanding of TB monitoring and evaluation (M&E) and surveillance systems and explores how USAID's performance-based M&E framework (PBMEF) with standardized high-quality indicators can improve the generation of quality data and support the analysis, interpretation, and use of that data to inform programming, identify gaps, and strengthen the overall system.

Course Objectives

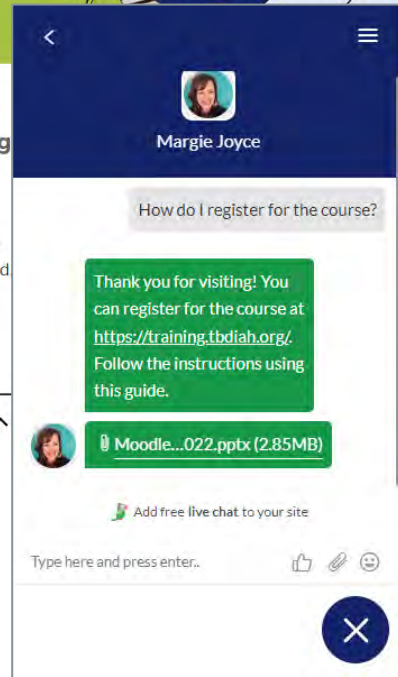
After completing this course, you will be able to: [\(Click to view\)](#)

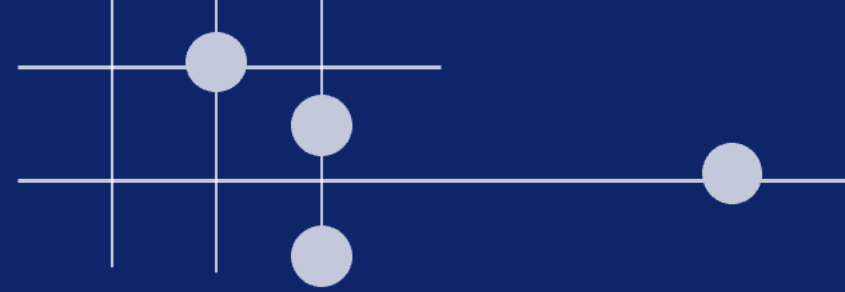
Course Sections



START HERE: Self-Assessment & Pre-Readings

🕒 Time to Complete: 5-10 minutes





Coding (javascript)

MA

It's now working! I just didn't refresh the page. But the confetti looks more like bug fights :)



I'm glad it's working now! The confetti effect in the current implementation might not look ideal since the particle count is set to only 1 per frame, which could resemble "bug fights." You can tweak the confetti settings to make it look more like a proper confetti effect.

Try updating the `confettiSettings` in your `confetti.js` file with the following code:

```
javascript Copy code
const confettiSettings = {
  particleCount: 100,
  spread: 70,
  origin: {
    y: 0.6
  },
  colors: [
    [165, 104, 246],
    [230, 61, 135],
    [0, 199, 228],
    [253, 214, 126]
  ]
};
```

This will increase the particle count and adjust the spread and starting position of the confetti particles, giving you a more traditional confetti effect.

MA

Is it possible to make the confetti explode 1 time and then subside?



Yes, you can make the confetti explode just once and then subside. To achieve this, you can remove the `requestAnimationFrame(frame)` function call and adjust the `confettiSettings` as needed.

Update your `confetti.js` file with the following code:

```
javascript Copy code
function launchConfetti() {
  const canvas = document.getElementById('confetti-canvas');
  const context = canvas.getContext('2d');
  const width = window.innerWidth;
  const height = window.innerHeight;

  canvas.width = width;
  canvas.height = height;

  const confettiSettings = {
    particleCount: 200,
    spread: 70,
    origin: {
      y: 0.6
    },
    colors: [
      [165, 104, 246],
      [230, 61, 135],
      [0, 199, 228],
      [253, 214, 126]
    ]
  };
  Regenerate response
```

Congratulations for completing your self-assessment!

You should receive an email with your results.

Please email us at elarning@tbdiiah.org if you have any questions or need support.













→ [COURSE HOME PAGE](#)



<https://aiscout.net/ai-tools/free/>

AI Tool Categories

[Home](#) » AI Tool Categories

 Free AI Tools 179	 Writing 167	 Chatbot 108	 Graphic Design & Image Editing 97
 Productivity 100	 Digital Marketing 85	 Personal Assistant 83	 Art & Image Generation 83
 Music & Audio	 Video & Animation	 Programming	 Customer Support

Free AI Tools

Potential Pitfalls

- Hallucinations
- Lack of precision

Gary Markum, a cognitive scientist working in AI, speaks critically about the limitations of LLMs: *“In some ways, large language models are a profound step backwards; they lack stable models of the world, which means that they are poor at planning, and unable to reason reliably; everything becomes hit or miss.”*

- Potential for misuse
- Require:
 - ✓ Transparency
 - ✓ Professional ethics and guiding principles
 - ✓ Discussions about trust and safety

AI Guiding Principles in Action

Human-Centered



What can you do in your role to ensure people are at the core of your development and/or implementation of AI tools?

User

I heavily edit and check over anything I've generated using AI.

User

Work collaboratively with clients and teams to listen and hear diverse perspectives about concerns, interests, options

See how AI can synthesize best learning recommendations for my team based on our combined experience.

User

Cross check information gathered through AI against other human inputs (aside from your own knowledge base) it is also important to check with other

Responsible



What can you do in your role to ensure you're developing or implementing AI tools responsibly?

Decision Maker

Ensure that staff are oriented on an ongoing basis to "do's and don'ts" using accessible language.

Decision Maker

Ensuring the level of privacy required by the project aligns with the privacy settings of the tools used in the project

We need to ensure that we declare to our coworkers and others when we are using ai, so others can check for hallucinations/errors

User

Be transparent about use of AI and sources of information

Equitable



What can you do in your role to ensure equitable development or implementation of AI tools?

Decision Maker

Ensure that all staff have opportunity to both learn about and use AI tools with confidence

Accessible information, tools, and trainings/recordings

Decision Maker

Vet for quality of data, are outputs of tools biased or representative? What data needs to be added to make it valid.

Decision Maker

If what we use for everyday apps are collecting data/feeding AI should we monitor and check the sharing of private information?

User

Accountable



What can you do in your role to remain accountable to the ethical and equitable use of AI?

User: Be transparent when using AI

User

Vetting of common AI tools and their impact on sensitive data to have a blacklist/whitelist/neutral

User

Work with IT/Data security folks at JSI to ensure data are protected and compliant with federal requirements

Decision Maker

Establish norms around AI use and how to cite AI-assisted work.

Decision Maker

Just as you'd cite your source for research, cite your source if you use AI. Save your search results to

Suggestions



What else can we provide to help you better understand or practice these principles?

Suggestion

Keep a curated list of tools that are endorsed / should be avoided

Suggestion

List of vetted tools as well as AI service providers/partners /vendors

A list of AI tools that are able to be downloaded/used. Ex) Thredo for slack is restricted

Suggest methods to assure that AI sources are not causing us to plagiarize the work of others, especially as we craft written reports, reviews of the lit, guidance for projects,

Thoughts and Takeaways

- Generative AI extends your existing skills, but cannot replace humans
- Beware of hallucinations
- Be transparent
- Garbage in, garbage out still applies
- The only way to learn is to play around with the tools
- Follow a code of ethics
- Generative AI will become commoditized and part of every app (wearable AI to robotics)

“The future is here... it’s just not equally distributed”

(William Gibson, August 1993)

Technology can deepen the grooves of existing inequities



Humane reveals first AI device - the AI Pin - at Coperni's Paris fashion show ahead of full unveiling on November 9



Boston Dynamics Chat Robots



Developing a TB M&E AI Chatbot



Alexander Asatiani

Introducing MELVIN





- ✓ What is training data, and why is it important?
- ✓ Limitations of public GenAI models in technical domains
- ✓ Hallucinations
- ✓ Customized GenAI solutions
- ✓ Who is MELVIN - conversational AI vs. generative AI
- ✓ Potential for enhancing learning experiences
- ✓ How does MELVIN work?
- ✓ Showcase
- ✓ Limitations
- ✓ What's next

What is training data, and why is it important?



Training Process in AI

Just like a child learns from experiences, AI systems undergo a training process where they analyze large sets of data. This phase teaches them to recognize patterns, understand relationships, and equip them with decision-making abilities similar to a well-informed human.



Significance of Training Data

Training data acts as the "brain" of AI systems, enabling them to learn, make decisions, and generate content. It serves as the initial information set used to teach machine learning models to perform specific tasks.



Impact on Generative AI Models

The quality and volume of training data profoundly influence the accuracy and reliability of generative AI models. This data determines the model's ability to produce relevant and coherent outputs.



Risks of Poor Training Data

Inadequate or biased training data can lead to AI models that produce misleading results or reinforce existing biases, especially in critical fields like health. Conversely, a carefully curated training dataset reduces biases and inconsistencies, ensuring a reliable and trustworthy AI system.

Limitations of Public GenAI Models in Technical Domains



Lack of Depth and Accuracy

Public GenAI models often lack specific domain knowledge, resulting in content that may sound plausible but lacks technical depth and accuracy, potentially leading to misinformation in specialized fields.



Context and Adaptability Challenges

These models may struggle with fully understanding complex technical contexts and rapidly evolving information, have limited domain-specific vocabulary, and face challenges in customization and controlling outputs.

- **Lack of specialization**
- **Limited context understanding**
- **Limited domain-specific vocabulary**
- **Inability to keep up with rapid changes**
- **Limited customization**
- **Limited control over outputs**
- **Non-native language output**

Hallucinations



Quality of Training Data

The performance of AI models is highly dependent on their training data. Insufficient or biased data can lead to AI hallucinations, as the model may not have encountered a diverse range of examples to make accurate generalizations.

Solution: Ensure that the training data is both comprehensive and representative of the diverse scenarios the AI model will encounter



Risk of Overfitting

Overfitting, where an AI model becomes overly specialized in its training dataset, impairs its ability to generalize to new data, potentially causing hallucinations when faced with unfamiliar inputs.

Solution: Train with more data, regularization, early stopping, or cross-validation



Input Ambiguity

AI models require clear, unambiguous input to generate accurate outputs. Ambiguous or conflicting information can confuse the model, leading to distorted or nonsensical outputs known as hallucinations.

Solution: Pre-process and clean the input data, ensuring that it is as clear and unambiguous as possible

Customized GenAI Solutions



Specialization for Domain-Specific Tasks

Tailored models can be fine-tuned for specific domains, making them potentially more accurate and efficient for those tasks.



Reduced Bias and Controversy

Tailored models can be carefully curated and fine-tuned on balanced, bias-free datasets to mitigate risk of biased content.



Customizable Training Objective

Tailored models allow organizations to set custom objectives, ensuring that the model behaves optimally for the desired application.



Control over Model Behavior

With custom models, there's more control over the behavior of the model.

Customized GenAI Models



Quality Control

The training data and training process for custom models can be rigorously controlled to ensure high-quality outputs.



Feedback Loop Integration

Tailored models can be integrated with feedback mechanisms to continuously learn from their mistakes or to adapt to new data.



Dynamic Adaptation

Tailored models can be continuously updated (and be retrained) and adapt to changing needs, new data, or feedback loops.



MELVIN is a conversational AI chatbot aimed at expanding **M**onitoring and **E**valuation knowledge and enhancing **L**earning experiences in the field of TB. It's our **V**ision to harness the power of emerging technology to navigate professionals toward relevant resources and **I**nformation.

Who is MELVIN - Conversational AI vs. Generative AI

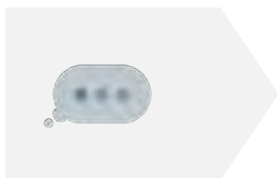
Aspect	Conversational AI	Generative AI
Focus	Creating human-like interactions and conversations	Generating creative and original content
Application	Chatbots, virtual assistants, customer support	Text, image, music generation, creative applications
NLU	Understands natural language input	Learns patterns to generate new content
Context Management	Maintains context for coherent conversations	Generates content based on learned patterns
Response Generation	Provides contextually relevant responses	Produces creative outputs based on training data
User Interaction	Engages users in dynamic and interactive dialogues	Generates content without direct copying
Creativity	Focuses on relevant responses	Demonstrates creativity in content generation
Diversity	Tailors responses to user input	Generates a wide range of outputs
Use Cases	Customer support, virtual assistants, chatbots	Art generation, text completion, creative writing

Source: [Datasciencecentral](https://datasciencecentral.com)

Generative AI focuses on generating text content, while conversational AI specializes in interactive and context-aware conversations. Conversational AI often utilizes generative AI as a component to produce responses during a conversation.

Yes, conversational AI chatbots can also be generative AI. In fact, the two terms are often used interchangeably in some contexts, but they represent different approaches or characteristics within the broader field of chatbot design.

Generative AI enabled chatbots are much more human like interactions and can process complex questions.



Conversational AI

Utilizes natural language processing (NLP) to understand user intent and fetches unprocessed information directly from various data sources, evolving from simple Q&A bots to context-aware assistants.



Generative AI-enabled Chatbots

Can access and synthesize information from multiple sources, providing users with contextually relevant and summarized responses, resulting in more human-like interactions and the ability to process intricate queries.

Potential for Enhancing Learning Experiences



Personalized Learning: MELVIN can adapt its responses based on the specific needs and preferences of individual users (or learners). It can offer personalized learning pathways, suggesting resources and topics that align with each individual's skill level and goals.



Access to Relevant Information: MELVIN can provide instant access to a growing repository of curated materials related to TB and TB M&E. This ensures that users (learners) have access to up-to-date and relevant information at their fingertips, reducing the time spent searching for resources.



Continuous Learning Support: MELVIN can be available 24/7 to answer questions, provide explanations, and offer guidance on TB-related topics. This continuous support ensures that users (learners) can access assistance whenever they need it, enhancing their overall learning experience.



Resource Aggregation: Instead of professionals having to search multiple platforms or sources for information, MELVIN can serve as a one-stop hub, pulling together diverse resources for comprehensive learning.



Interactive Conversations: MELVIN can engage learners in interactive conversations, helping them clarify doubts, explore complex concepts, and engage in meaningful discussions.



Interactive Learning Modes: MELVIN can generate interactive elements, such as quizzes, simulations, or scenario-based exercises. This hands-on approach can deepen understanding and improve retention.

Potential for Enhancing Learning Experiences



Always Updated: Conversational models like MELVIN can constantly update their knowledge base to stay current with the latest research and guidelines, changes in TB treatment, and M&E practices. This ensures that learners are exposed to the latest information.



Data-Driven Insights: By analyzing user interactions, MELVIN can provide insights on common areas where professionals struggle, prompting the development of new learning modules or resources to address those gaps.



Accessibility and Flexibility: With a digital platform, learners can access MELVIN at their convenience, be it during a commute, in between patients, or at home. This flexibility can enhance the motivation to learn, explore, and develop.



Multilingual Support: MELVIN can offer support in multiple languages, making learning accessible to a broader audience and breaking language barriers.

How does MELVIN work?



Carefully curated specialized knowledge base

MELVIN is exclusively based on a carefully curated, specialized knowledge base that is isolated from the public GenAI training data. This separation is crucial in maintaining the integrity and relevance of the information that MELVIN provides, especially given the technical and complex nature of TB and TB M&E. The specialized knowledge base ensures context understanding, accuracy, and depth in technical discussions.



The Context Boundary Wall

MELVIN uses GPT-4, a cutting-edge language model, as its response engine, drawing from a specialized knowledge base. This is achieved by using the CustomGPT platform, which allows for the ingestion of specialized content and the ability to respond to queries based on that specific content. The platform's virtual “boundary” works by imposing a strict rule that confines the AI's responses to the data it has been given.

How does MELVIN work?



Customized Training Objective: Unlike generic public models, MELVIN has a specific training objective tailored for TB expertise.



Controlled Behavior: MELVIN offers more controlled behavior due to its customized nature.



Quality Control: MELVIN's training data and process are carefully overseen, ensuring the delivery of high-quality and accurate TB-context responses.



Feedback Loop Integration: MELVIN is designed with integrated feedback mechanisms. This feature enables it to continuously refine its responses, ensuring that it stays updated.



Dynamic Adaptation: MELVIN is adaptive and isn't static in its knowledge base. It has the potential to be periodically updated and retrained.



Supercharge TB M&E knowledge with the power of AI

MELVIN is a conversational AI chatbot aimed at expanding Monitoring and Evaluation knowledge and enhancing Learning experiences in the area of TB. It's our Vision to harness the power of emerging technology to navigate professionals in relevant resources and Information [Learn more →](#)

Ask MELVIN



Personalized Learning

MELVIN can adapt its responses based on the specific needs and preferences of individual users

[Learn more →](#)



Access to Relevant Information

MELVIN can provide instant access to a growing repository of curated materials related to TB and TB M&E.

[Learn more →](#)



Resource Aggregation

Professionals can use MELVIN as a one-stop hub to access diverse learning resources instead of searching multiple platforms.

[Learn more →](#)

Advantages of MELVIN

Ask me anything...

Shift + Enter to add new line

Ask me anything...

Shift + Enter to add new line

Ask me anything...

Shift + Enter to add new line

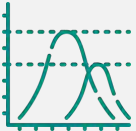
Ask me anything...

Shift + Enter to add new line

Limitations



Dependency on Prompting: The quality of the output can depend on how a question or prompt is phrased. Changes in phrasing can lead to varied responses.



Limited Data Analysis Capability: MELVIN can provide insights based on its training, but it can't perform advanced data analysis like specialized tools. For detailed statistical or data tasks, it's not the optimal choice.



Not Always Omniscient: A chatbot won't always have an answer to every query. However, its admission of not knowing is a sign of its functionality—it refrains from generating arbitrary or hallucinatory responses and aims to provide accurate and reliable information.



Varied Translation Quality: Machine translation excels for well-represented languages but can be inconsistent for less common languages due to limited training data or unique linguistic challenges.

What's Next



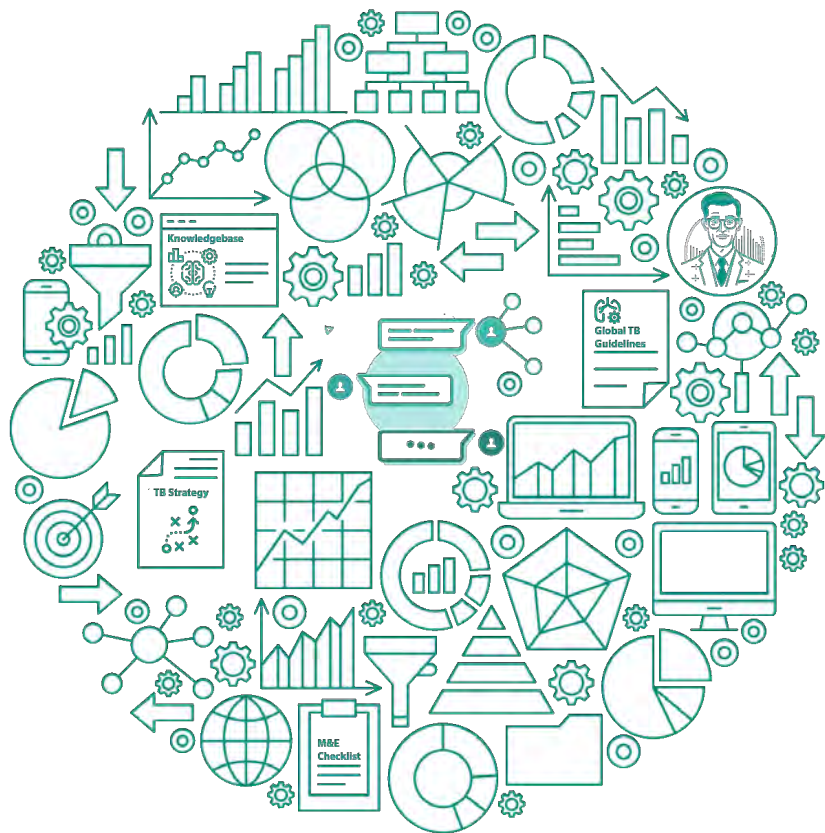
Further expand and enhance the knowledge base



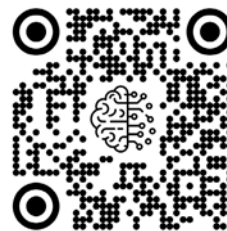
Research focused Alter Ego



API and integrations

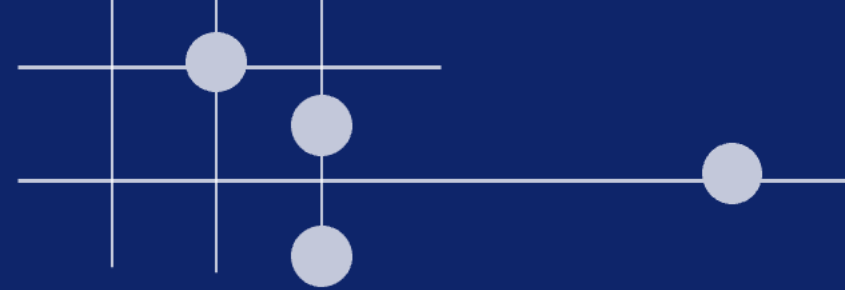


MELVINTB.AI





Q&A



Thank you!

Live Links

TBDIAH.org



<http://www.tbdiah.org>

PBMEF



<https://www.tbdiah.org/resources/publications/navigating-tuberculosis-indicators-a-guide-for-tb-programs/>

QTSA



<https://www.tbdiah.org/assessments/quality-of-tuberculosis-services-assessments/>

D2AC



<https://www.tbdiah.org/assessments/d2ac/>

Data Analysis &
Visualizations



<http://hub.tbdiah.org>

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This presentation was produced with the support of the United States Agency for International Development (USAID) under the terms of the TB Data, Impact Assessment and Communications Hub (TB DIAH) Associate Award No. 7200AA18LA00007.

TB DIAH is implemented by the University of North Carolina at Chapel Hill, in partnership with John Snow, Inc. Views expressed are not necessarily those of USAID or the United States government.

PR-23-068

