

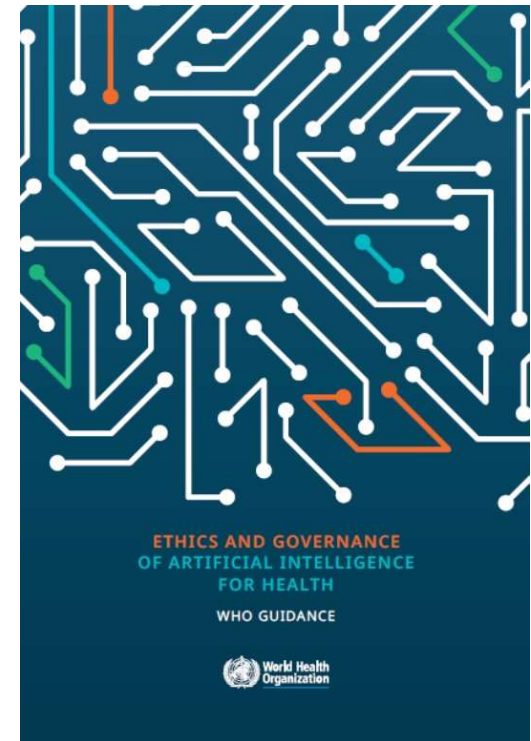
# Online learning and beyond: Ethics & Governance of Artificial Intelligence (AI) for Health

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# WHO Guidance on Ethics and governance of artificial intelligence for health

- Published in June 2021
- Identifies **ethical challenges** in the use of AI for health and governance opportunities
- 6 **consensus principles**
- 47 **recommendations** for policymakers, AI designers and healthcare providers to implement.

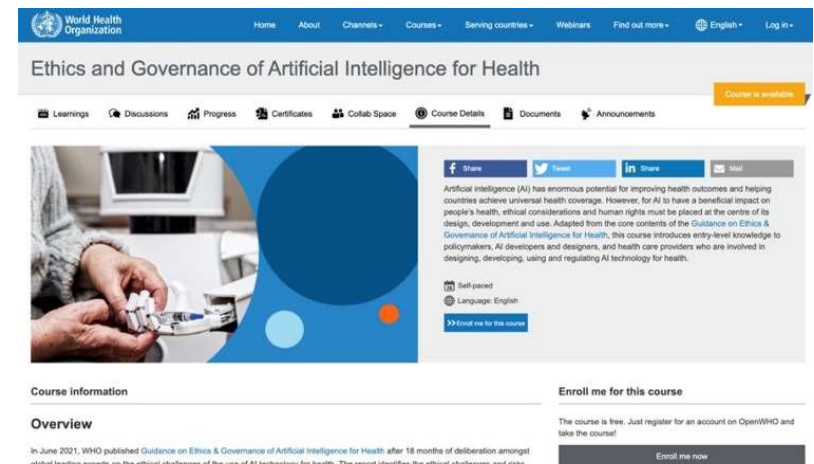


<https://www.who.int/publications/i/item/9789240029200>

# WHO Guidance implementation: Online course

...Accelerate translating knowledge from the guidance into actionable information...

- **Entry-level** knowledge on the **role of AI in health care**, its **opportunities**, and the **challenges** on the ethical use of AI technology for health
- Designed to support **governments**, **AI technology developers** and **healthcare providers**
- Live on



<https://openwho.org/courses/ethics-ai>

# Course structure

3.5 hour-course

7 modules and 3 practical guidance sections (checklists) for the target audience

Pre- and post-course surveys

Video presentations by leading experts

Reading materials and useful links

Knowledge Checks & Final Course Assessment

- › Syllabus
- › Course Introduction
- › Module 1: Applications of Artificial Intelligence for Health
- › Module 2: Laws, Policies and Principles
- › **Module 3: Ethical Principles**
  - About the Module
  - Unit 1: Ethical Principles of using AI for Health
  - Unit 2: Key Ethical Principles**
  - Knowledge Check
  - Discussions
- › Module 4: Ethical Challenges
- › Module 5: Building an Ethical Approach to the use of AI for Health
- › Module 6: Liability Regimes for AI for Health
- › Module 7: Elements of a Framework for Governance of AI for Health

The screenshot shows the WHO course interface. At the top is the WHO logo and navigation links. The main header is 'Ethics and Governance of Artificial Intelligence for Health'. Below this is a navigation bar with links to Learnings, Discussions, Progress, Certificates, Collab Space, Course Details, Documents, and Announcements. A 'Course is available' badge is on the right. The main content area is titled 'Unit 2: Key Ethical Principles' and includes a 'Key Ethical Principles' section with six numbered items: 1. Protect autonomy, 2. Promote human well-being, human safety and the public interest, 3. Ensure transparency, explainability and intelligibility, 4. Foster responsibility and accountability, 5. Ensure inclusiveness and equity, 6. Promote artificial intelligence that is responsive and sustainable. Below this is a 'Knowledge Check' section with a question: 'What are the basic ethical principles for AI for health?' and a list of options: Autonomy, Efficiency, Do no harm, Beneficence, Fairness. A progress bar at the bottom indicates 00:48 / 12:43.

# Introductory course on ethics and governance on AI for health

- 3.5 hours, 8 modules and 3 practice checklists
- Adapted from the guidance documents
- Tailored as introduction to AI related considerations
- **25 000+ learners** enrolled since June 2022
- From **178+ countries**
- **7000+ record of achievement**
- 1700+ ongoing discussions in the forum

> Syllabus

> Course Introduction

> Module 1: Applications of Artificial Intelligence for Health

About the Module

Module 1 Introduction

Unit 1: AI in Health Care

Unit 2: Emerging Trends for AI in Health

Unit 3: AI in Health Research and Drug Development

Unit 4: AI in Health Systems and Public Health Programmes

Knowledge Check

Discussions

> Module 2: Laws, Policies and Principles

> Module 3: Ethical Principles

> Module 4: Ethical Challenges

> Module 5: Building an Ethical Approach to the use of AI for Health

> Module 6: Liability Regimes for AI for Health

> Module 7: Elements of a Framework for Governance of AI for Health



World Health Organization

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Ethics and Governance of Artificial Intelligence for Health

Learnings Discussions Progress Certificates Collab Space Course Details Documents Announcements

Course is available

Unit 1: AI in Health Care

Module 1: Applications of Artificial Intelligence for Health

Unit 1: AI in Health Care

World Health Organization

00:00 / 06:06

About this video

In this video, we will look at the use of AI in diagnosis and clinical care.

Data Analytics/AI

1 votes 1 day ago

26 views 5 replies

AI and climate change

1 votes 1 day ago

5 views 3 replies

Advantages and disadvantages of technological intelligence on young children

1 votes 4 days ago

16 views 4 replies

ARTIFICIAL INTELLIGENCE IN HEALTH

3 votes 4 days ago

65 views 7 replies

government ministries

1 votes 5 days ago

1 view 0 replies

Can we use Expert Systems in place of Doctors ?

1 votes 8 days ago

1 view 0 replies

Can doctor's oath be changed because of AI

1 votes 9 days ago

5 views 2 replies

Can AI trustworthy ? Errors can be misleading.

1 votes 10 days ago

10 views 4 replies



# Continued knowledge transfer in various formats

## 1 Regional workshops



## 2 Courses and case studies



WHO online introductory course on ethics and governance of AI for health



AMARA Case Study

User-designed

## 3 Knowledge dissemination



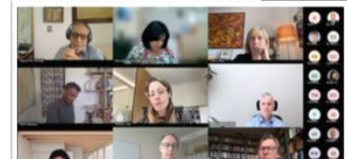
TB Union Conference



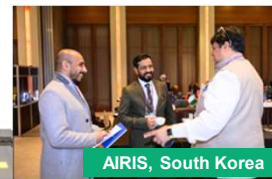
Sexual & Reproductive Health Meeting, Geneva



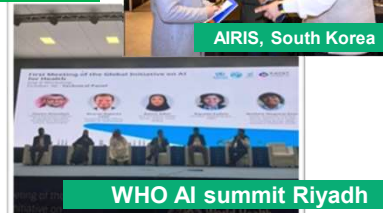
UNGA 2023



Expert Group Consultation



AIRIS, South Korea



WHO AI summit Riyadh

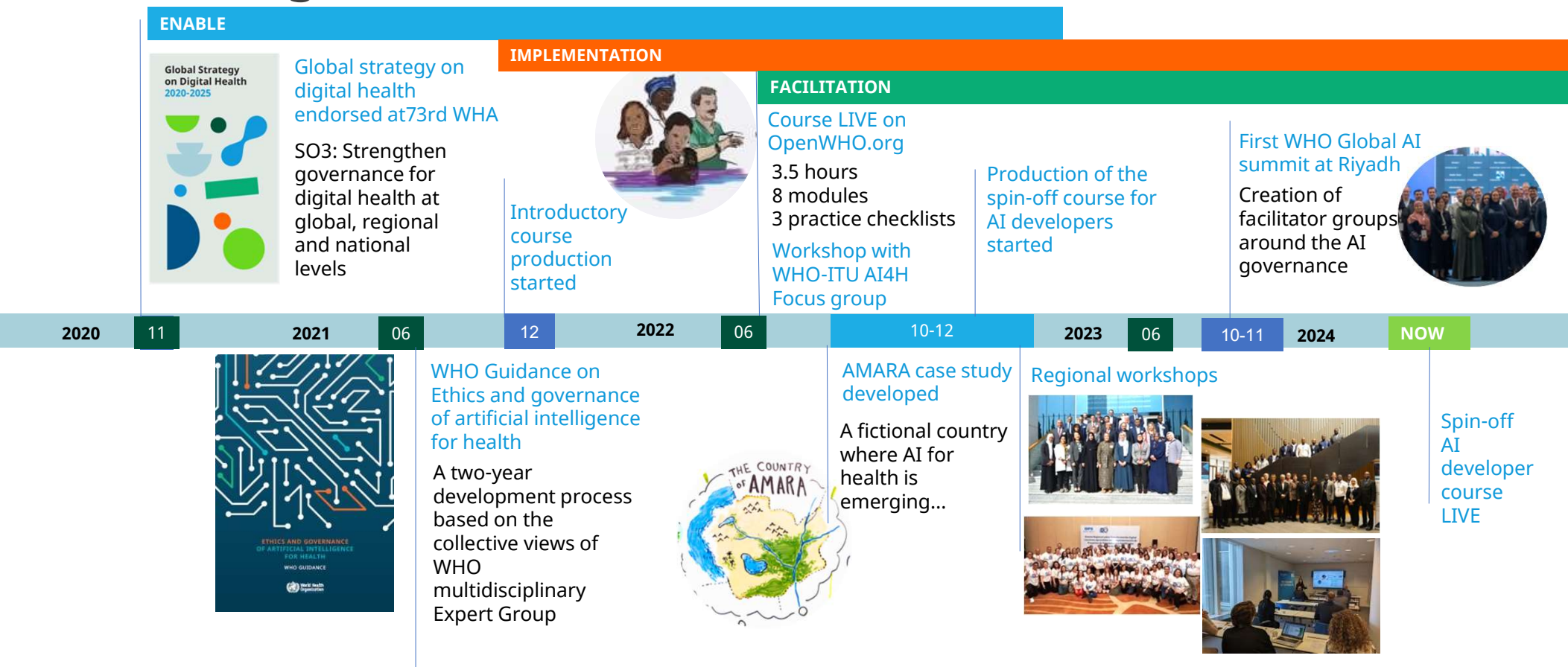


# Meeting Design Overview

## Global Initiative on AI for Health

<b>DAY 0</b> <b>WORKSHOP DAY</b>	<ul style="list-style-type: none"> <li>• <b>Technical</b> and <b>policy-making</b> presentations.</li> <li>• Provide an <b>overview of AI in health</b> by the three agencies and partners.</li> <li>• Set the <b>groundwork</b> for the subsequent three days.</li> </ul>
<b>DAY 1</b> <b>ENABLING DAY</b>	<ul style="list-style-type: none"> <li>• Flash presentations on <b>achieved</b> and <b>ongoing work</b>.</li> <li>• Discussions on the <b>current state of AI in health</b>.</li> <li>• Jump into <b>co-creation</b> to address <b>health needs, gaps, and governance challenges</b>.</li> </ul>
<b>DAY 2</b> <b>FACILITATING DAY</b>	<ul style="list-style-type: none"> <li>• <b>Stakeholders' presentations on their roles in health.</b></li> <li>• Specialized interventions for <b>in-depth insights</b>.</li> <li>• <b>Community</b> breakout sessions for <b>collaborative planning</b>.</li> </ul>
<b>DAY 3</b> <b>IMPLEMENTING DAY</b>	<ul style="list-style-type: none"> <li>• <b>Audience engagement</b> in a playful yet focused <b>exploration of AI applications</b> through the 'AMARA' case study.</li> <li>• Innovative <b>AI-driven solutions</b> from <i>Ideathon</i> presentations.</li> <li>• Strategies for <b>mobilizing innovation</b> and <b>ensuring intellectual property rights</b>.</li> </ul>

# Knowledge transfer timeline





# Global Initiative on AI for Health

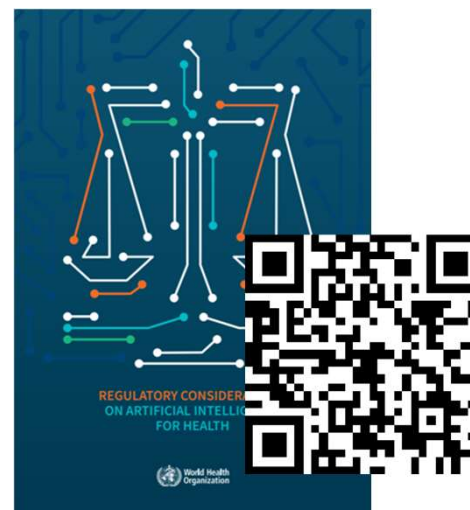
Over 150,000 + Downloads



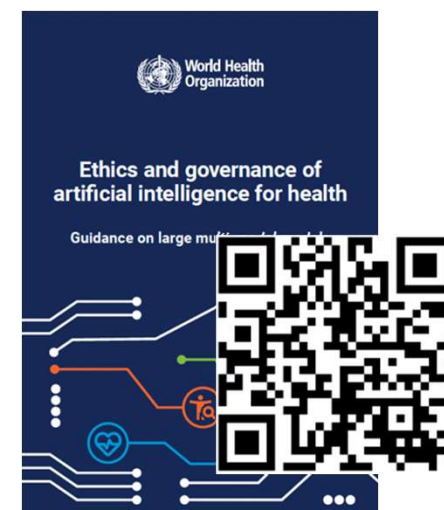
Ethics and Governance of Artificial Intelligence for Health



Generating Evidence for Artificial Intelligence-based Medical Devices



Regulatory Considerations on Artificial Intelligence for Health




Ethics and Governance of AI for Health: Large Multi-Modal Models



WHO Online introductory course on Ethics and governance of AI for health





How could we adapt the  
knowledge for Traditional  
Medicine?

# How could we adapt the knowledge for Traditional Medicine?

## Potential ideas

1. Tailored spin-off learning modules
2. AMARA 2.0 scenario and personas
3. Thematic seminars, workshops and Ideathon with TM stakeholders
4. Dedicated topic group side event under Global AI / TM summit
5. ...



# Spin-off course for AI developers

## Integrating Ethics and Governance into the Design of Artificial Intelligence Tools for Health.


### Case Study: Cervical Cancer Screening

- Cervical cancer case study
- Co-drafted between WHOCC and subject experts
- Tailored for AI developers
- Provide tangible contexts to public health professionals
- Follow the AI life-cycle

Integrating Ethics and Governance into the Design of Artificial Intelligence Tools for Health. Case Study: Cervical Cancer Screening In preparation

[Back to course](#)

Learnings Discussions Progress Certificates Collab Space Course Details Documents Announcements



And strategy...  
...the...  
...the...  
...the...

This course builds upon the WHO guidance and adapted introductory online course [Ethics and Governance of Artificial Intelligence for Health](#), aiming to guide programmers, designers, data scientists and principal investigators in integrating ethical considerations and effective governance frameworks throughout the full artificial intelligence (AI) lifecycle. The course follows a case-based approach focusing on a use case that explores enhancing access to cervical cancer screening for undocumented migrant women using an AI tool. Modules cover ethical considerations from data collection to the deployment and maintenance of the AI tool. The course emphasises the significance of informed consent, explores strategies to implement risk-based approaches, and delves into the notions of autonomy and accountability. Through interactive learning, participants gain practical insights into responsible AI design, development, deployment, and maintenance, ensuring the right balance between innovation and healthcare benefits.

Photo credit: Getty Images / milan-danet & WHO / Blink Media - Eltona Yoonie

Counting down

### Topic 2: Characteristics of a Representative Sample and Different Sampling Techniques

[Edit item](#) [Edit outcomes](#) [Statistics](#)

## Module 2: Before Designing an AI Tool

### Unit 1: Ethical Issues Related to Data Used to Train the Algorithm

### Topic 2: Characteristics of a Representative Sample and Different Sampling Techniques

World Health Organization

### Knowledge Check

[Edit item](#) [Statistics](#)

**1** This quiz is a self-test. You can repeat it as often as you like.

**Question 1** 1.0 Pts

How will the captured colposcopy images be stored in Profectus and middle- to low-income countries, according to the preceding conversation?

☐ Local servers in Profectus, AI cloud platform in the middle- to low-income countries

☐ AI cloud platform in Profectus, local servers in middle- to low-income countries

☐ Local servers in both Profectus and middle- to low-income countries

☐ AI cloud platform in both Profectus and middle- to low-income countries

**Question 2** 1.0 Pts

What will be implemented to guarantee efficient data storage within the AI cloud platform?

☐ Cloud retention policy

☐ Real-time responses for colposcopists

☐ AI-based classification model

## AMARA 2.0 personas

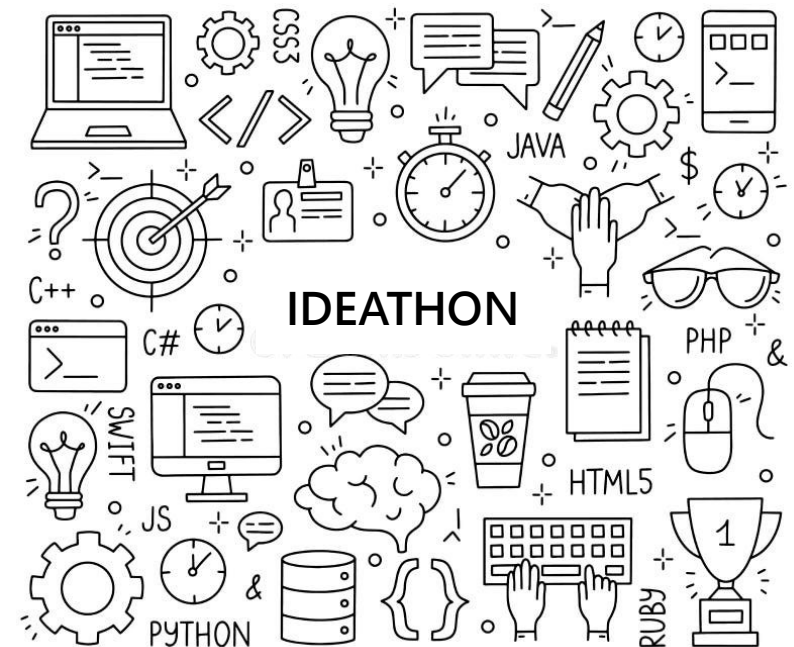
- Reference from the upcoming mapping review
- Adapt new personas from the TM world
- Inject TM relevant scenarios with policy and public health dilemma
- Create specific context where TM exists





## What would an AI-TM Ideathon/Editathon look like?

- Solution oriented? Process oriented?
- Part of the offline training contents to the curriculum?
- Part of the activity under the Global AI summit?
- Students only? Multi-discipline team with academic and practitioners?



What does the knowledge value chain of AI and TM look like in the next five years?

What are the learning priorities for the TM community when coming to ethics and governance of AI for health?



# Learners' identity and testimonies



**AI developer,  
designer or  
technology manager**

...Very good course, [...] Thank you very much for offering us new knowledge on artificial intelligence applied to health systems... May 2022

**Healthcare provider**



**Government  
official or  
policymaker**

...Seria injusto não externar minha satisfação com vocês da WHO e colaboradores em relação a este Curso "Ethics and Governance of Artificial Intelligence for Health"... June 2022

...This course is a good opportunity to prepare those interested in this great advance in medicine, which will undoubtedly mark medicine in the 21st century...





*We must ensure the  
Digital Health revolution  
is safe, sustainable  
and leaves no one behind.*

*Thank you*

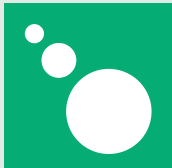


**World Health  
Organization**

## 4 Strategic Objectives



**SO1** Promote **global collaboration** and advance the **transfer of knowledge** on digital health



**SO2** Advance the **implementation** of national digital health strategies



**SO3** Strengthen **governance** for digital health at global, regional and national levels



**SO4** Advocate **people-centred health systems** that are enabled by digital health



World Health  
Organization

SEVENTY-THIRD WORLD HEALTH ASSEMBLY  
Agenda item 18.6

WHA73(28)  
13 November 2020

### Global strategy on digital health

The Seventy-third World Health Assembly, having considered the consolidated report by the Director-General<sup>1</sup> and the draft global strategy on digital health,<sup>2</sup> decided:

- (1) to endorse the global strategy on digital health;
- (2) to request the Director-General to report back on progress in the implementation of the global strategy on digital health to the Seventy-sixth World Health Assembly in 2023.

Third plenary meeting, resumed session, 13 November 2020  
A73/VR.3 (resumed)



# Global Initiative on AI for Health (GI-AI4H)



**Enable**

Standards,  
Governance,  
Policies, and  
Guidance on  
evidence-based  
AI4H

**Facilitate**

Pooled  
Investments &  
a global  
community of  
experts

**Implement**

Sustainable  
models of AI  
programs  
implementation  
at the country  
level

**Launched on July 6, 2023!**

