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| **ITU-T Focus Group on AI for Health** |
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| **Abstract:** | In recent years, the Traditional Medicine sector has grown in various dimensions and invited considerable amount of global attraction. To cater to new developments and demands, there is an increase in modern technologies like Artificial Intelligence (AI), Decision Support Systems (DSS), Ayurgenomics etc. in Traditional medicine sector. |

# Overview

88% of all countries are estimated to use traditional medicine, such as herbal medicines, acupuncture, yoga, indigenous therapies and others. One hundred seventy Member States report the use of traditional medicine (TM), and their priority request to World Health Organization (WHO) is for evidence and data to inform policies, standards and regulatory frameworks for safe, cost-effective and equitable use. Traditional medicine has been an integral resource for health for centuries in communities around the world, and it is still a mainstay for some with inequities in access to conventional medicine. The sociocultural practice and biodiversity heritages of traditional medicine are invaluable resources to evolve inclusive, diverse sustainable development. Traditional medicine is also part of the growing trillion-dollar global health, wellness, beauty, and pharmaceutical industries. Over 40% of pharmaceutical formulations are based on natural products and landmark drugs, including aspirin and artemisinin, originated from traditional medicine.

Recently, the World Health Organization (WHO) and the Government of India signed an agreement to establish the WHO Global Centre for Traditional Medicine at Jamnagar, India. This global knowledge centre for traditional medicine aims to harness the potential of traditional medicine from across the world through modern science and technology to improve the health of people and the planet. One of the mandates of the centre is to focus on innovation and technology, including an artificial intelligence project which has already started global mapping of patents and research, as well as links to the new WHO Innovation Hub.

Dr Tedros Adhanom Ghebreyesus, DG WHO, during host country agreement signing said that there has been a rapid modernization of the ways traditional medicine is being studied. Artificial intelligence is now used to map evidence and trends in traditional medicine and to screen natural products for pharmacokinetic properties. In addition, functional magnetic resonance imaging is used to study brain activity and the relaxation response that is part of some traditional medicine therapies such as meditation and yoga, which are increasingly drawn on for mental health and wellbeing in stressful times.

WHO’s Traditional Medicine Strategy 2014-23 aims to help countries develop policies and plans to strengthen the role of traditional medicine, based on solid scientific evidence. Where appropriate, countries can integrate traditional medicine into modern health systems, especially at the primary health care level, and to promote its use by individuals and communities in holistic efforts to promote wellbeing.

# Relevance

**Use of IT & Modern Technologies in Traditional Medicine-** In recent years, the TM sector has grown in various dimensions and invited considerable amount of global attraction. To cater to new developments and demands, there is an increase in modern technologies like Artificial Intelligence (AI), Decision Support Systems (DSS), Ayurgenomics etc. in TM. Accordingly, there has been phenomenal increase in the adoption of IT in the last years, and hence IT has become one of the main ingredients of TM in various countries.

# Impact

One example from India could be seen as an example. During the lock down period of the Covid 19 pandemic, Ministry of Ayush had conducted one mobile app, Ayush Sanjivani based survey and collected data sets from 1.4 Cr people; out of these, data from 7,23,459 individual respondents were analysed and found out that 89.8% strongly or moderately agreed to have benefitted from Ayush measures for maintaining their health during pandemic. There are various other examples also available from other countries.

# Existing work

AI is one of the emerging focus areas in TM. Considering potential of AI in healthcare especially in mining and analyzing medical records, designing treatment plans, forecasting health events, clinical decision making, medication management, etc. Countries practising TM have started leveraging AI and other technologies in research, cultivation of medicinal plants, drug manufacturing, and supply chain management. Recently, few noteworthy works in the area of AI and genomics have been taken up. Individual Constitution is a TM-based fundamental concept that could be validated using AI. Individual Constitution method-based clinical stratification of healthy individuals has been shown to be recapitulated by Advanced statistical and Machine learning based algorithms. Unsupervised machine learning methods have also been able to capture phenotypic architecture underlying dosha prakriti. AI in TM will also be helpful for evidence-based research, identifying correlations between various predisposing factors & personality traits in the occurrence of various disorders, especially life style disorders.

# Data availability, Data quality, Annotation/label quality, Data provenance

# Use cases-

1. Assessment of “An Individual’s Constitution and its application in disease proneness and precision medicine” using AI/ML based ICT products.
2. Application of Artificial Intelligence in diagnosis and efficacy evaluation of TM.
3. AI/ML solutions for screening of herbs, ingredients, and component combinations (Network pharmacology) used in TM treatment.

# Benchmarking

1. Participants should be able to submit an AI model capable of “An Individual’s Constitution Prediction”, TM-Diagnostics, TM- Network pharmacology and any related with TM best practices.
2. AI genomics and traditional medicine
3. Digital & AI for implementation, scale and sustainability
4. AI for evidence mapping and correlation
5. AI for faster, collaborative and enhanced research and evidence documentation in traditional medicine

# Organizer

As demonstrated above Ministry of Ayush would lead this work together with other traditional medicine stakeholders across the world.

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