



## Significance of preserving indigenous knowledge through digital means

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### Abstract

The indigenous knowledge which has been passed through generations, carries a substantial amount of philosophical, ecological, cultural and medicinal values. Keeping in view the prime importance of such a treasure, it becomes necessary to preserve and document this indigenous knowledge. Furthermore, in the modern era, which is defined by the technological advancements, revolutionary societal changes and globalization, the preservation and promotion of indigenous knowledge gains paramount significance. Through this paper, the researcher aims to investigate the role of digitization in documenting and preserving the indigenous knowledge system and also examine the obstacles and limitations that may arise during the process. The researcher for her study opts for comprehensive literature review, analyses the policies of government and non-government organizations and examines the case studies of digitization programs related to indigenous knowledge. The study is relevant in multifaceted ways. Firstly, it highlights the significance of technology to empower the indigenous society by providing them the platform to share their knowledge. Secondly, it emphasises on the importance of preserving indigenous knowledge for its ability to contribute to biodiversity conservation and sustainable development. Lastly the research seeks to ensure that digitization process is aligned with the ethical principles of indigenous cultures so that it promotes collaboration and avoids exploitation. This paper gives a comprehensive understanding into how the digitization can play a significant role in the future of indigenous knowledge systems, particularly in the context of India. It also provides recommendations for the effective preservation strategies.

**Keywords:** Indigenous knowledge, digitization, documentation, technology, cultural heritage

### Introduction

Indigenous knowledge refers to an invaluable wisdom belonging to a specific indigenous community which has been passed down from one generation to another. It is a treasure based on the social, cultural and religious beliefs of these indigenous communities that have contributed to their survival and a sense of belongingness in this world. As per UNESCO report, the world is home to 370-500 million indigenous people speaking near about 7000 different languages and adopting approximately 5000 cultures. India, a land better known for its rich and diversified culture contributes a lot in terms of indigenous knowledge and hence it is necessary to preserve its rich heritage. The indigenous knowledge incorporates within itself a wide range of disciplines including ecology, medicine, philosophy, agriculture and various cultural practices. Such knowledge gained through experience over the years and applied to the surroundings has always influenced human civilization. However, due to fast-track changes brought about by industrialization and globalization, the indigenous knowledge system is at a brink of marginalization. Indigenous communities across the globe which possess a rich tapestry of traditions and cultural knowledge are in a way of adapting modern life which in turn is resulting in the extinction of their traditional knowledge. Availability of limited economic opportunities in the rural areas along with the superiority of mainstream languages and the degradation in the environment has also contributed a lot in the migration of indigenous communities from their native places and thus resulting in the loss of traditional practices. In such prevailing conditions, there is a need of a system or an infrastructure which can help in preservation and

revitalization of such valuable knowledge and this is where the digital technology emerges as a promising tool for the documentation, preservation and dissemination of rich indigenous knowledge. Digital technologies such as virtual museums, online archives, multimedia resources and other databases offer the potential to safeguard the indigenous knowledge system in a very effective manner which is not possible through any other means. Digital media technology is impacting our society at a major level and hence it is vital to acknowledge its influence. Viksit Bharat an ambitious project initiated by NITI ayog also propels India to become a developed country by embracing the digital platforms operating for different sectors. The recent reports prove that India is successfully utilizing the digital means and have a record of maximum number of internet users. Thus, we can hope that digitizing the traditional knowledge will be a fruitful endeavour.

The paper highlights the role of digitization in the preservation of indigenous knowledge system by focussing on the cultural, social and educational implications. It explores all the possible benefits and challenges of using digital means to protect and preserve indigenous knowledge and also examines the case studies that showcase the success and failures of such initiatives. With the help of thorough literature review and analysis of the policies framed by governmental and non-governmental organizations the researcher intends to contribute towards the development of effective strategies for digitizing the indigenous knowledge.

### Objectives

The objectives comprise of

1. Analysing the potential of digital technologies in safeguarding the indigenous knowledge.
2. Exploring the social, cultural and educational applicability of digitizing indigenous knowledge for the existing and upcoming generations and
3. Examining the obstacles and limitations that may arise during the process of digitization.

### Methodology

The researchers for the study opt for comprehensive literature review, analyses the policies of government and non-government organizations and examines the case studies of digitization programs related to indigenous knowledge.

### Indigenous Knowledge Systems

There are communities across the globe surviving in remote and marginalized areas which are guardians to rich and valuable cultural, philosophical and social traditions. These communities are often termed as indigenous communities which encompass within themselves a tremendous amount of profound knowledge which is related to their ancestral lands and surroundings. Indigenous knowledge (IK) refers to the knowledge belonging to a specific ethnic group that is unique to that ethnic group, society or culture (Ghimire. P., 2021) [3]. This knowledge is entrenched in the customs, traditions, languages and other practices of indigenous communities. It is a system which encompasses everything from spiritual beliefs to agricultural practices, ecological wisdom, medicinal plants and oral histories etc. Indigenous knowledge is the living embodiment of cultural, social and historical significance for indigenous communities worldwide. The mention of indigenous knowledge, people and communities in the international forums such as WIPO (The World Intellectual Property Organization), UNESCO (United Nations Educational Scientific Cultural Organisation) and the United Nations Commission on Human Rights itself signifies the importance and need of revitalizing indigenous knowledge systems. According to WIPO, Traditional Knowledge (TK) is knowledge, to know how the skills and practice of earlier generation to develop and sustain their culture now becomes a part of their cultural and spiritual identity. Traditional knowledge is also defined by UNESCO as that knowledge which is practiced by indigenous and local communities for the conservation of their biodiversity.

The exemplification given by international bodies about indigenous or traditional knowledge gives insight into the fact that such knowledge is not only important for the sustainability and survival of generations but also plays a crucial role in biodiversity conservation. The traditional ecological knowledge (TEK) points out to the fact that indigenous people had a very good understanding of their environment due to which they have developed and followed the sustainable practices over the years. The indigenous knowledge which passed down from elders to young generations through songs, stories, oral teaching or rituals is facing the survival problems due to external pressure like modernization and globalization. Thus, it becomes even more necessary to document it and preserve it to save the unique identities of our culture and civilization. However, advanced digital means offer a great opportunity to bridge the gap between indigenous knowledge transmission approaches and modern techniques for

documentation and preservation. Additionally, the acknowledgement of preservation and revitalization of indigenous wisdom through digital means become even more necessary and unavoidable in this technology driven world.

### Role of Digital Means in Preserving Indigenous Knowledge

The digitization of indigenous knowledge pertains to the conversion of traditional knowledge methods such as customs and rituals, oral narratives and practices into digital configuration such as databases, audio-videos and text documents. As India is heading towards achieving the goal of Viksit Bharat @2047, which promises India to become a digitally literate country it becomes a pressing concern to use digital means in every sphere of our lives. Digital media technology plays a significant role in the preservation and revitalization of indigenous knowledge system through the use of effective tools such as mobile applications, interactive soft wares and online platforms required for the process. The digitization of indigenous knowledge system promises to offer multiple benefits to the present as well as future generations by providing an easily approachable record of knowledge that can be shared across geographical boundaries. Digital platforms like digital archives, virtual museums, language learning apps, face book, Instagram, you tube and websites provide an access to indigenous communities as well as general public to otherwise inaccessible knowledge. Artificial intelligence (AI) act as a powerful tool in knowledge preservation by facilitating the development of knowledge learning applications and tools. Virtual reality (VR) technology can transport knowledge to virtual environments where individuals can engage with native speakers and immerse themselves in cultural contexts.

Digital means can act as best reservoirs for strengthening the educational applications related to indigenous knowledge due to their accessibility and long-term preservation features. By incorporating the digital archives into educational bodies, the schools and universities can encourage better understanding and respect for indigenous belief system. Furthermore, digital means authorizes indigenous communities to reclaim control over their knowledge, certifying that it is documented and disseminated on their own term, free from exploitation. However, digitization of indigenous knowledge comes with some challenges and limitations on its way and hence it is necessary to acknowledge them. One of the basic concerns is the existence of ethical issues pertaining to secret or confidential knowledge of indigenous communities because many of them believe their knowledge to be a sacred one and possess a fear of facing exploitation if made public. Plights of proper internet connectivity and access to technology are other hindrances which effect the proper dissemination of indigenous knowledge to its audience. Consequently, it is necessary to address these challenges and work towards bridging the digital divide, thus ensuring to make the knowledge more accessible to one and all.

### Case Studies and Successful Initiatives

India with its rich cultural diversity and tremendous indigenous knowledge system offers a marvellous context for exploring the digitization of indigenous knowledge. The country is home to several indigenous communities each

having its own unique culture and practices. In recent years there have been several initiatives in the path of digitization of the valuable indigenous knowledge system. The digital empowerment foundation in India has initiated projects to document indigenous knowledge related to environmental conservation, agriculture and traditional healing.

- The National Museum of Indian Cinema has launched a virtual museum that describes the indigenous cultural practices and art forms from various regions of the country. The museum allows the artists to upload their work and share their rich cultural heritage with the entire world by engaging in virtual exhibitions.
- Traditional Knowledge Digital Library (TKDL) was launched in 2001 by CSIR (Council of Scientific and Industrial Research) to prevent bio piracy and patenting of India's traditional knowledge. It has digitized many formulations from Ayurveda, yoga and unani practices. It has helped India revoke patents granted to foreign entities on traditional remedies like neem, turmeric and basmati rice.
- National Mission for Manuscripts (NMM) was launched in 2003 under the Ministry of Culture to preserve India's ancient manuscripts and texts. It has nearly 3 million manuscripts digitized covering topics like philosophy, astronomy and medicine. Saraswati Mahal library in Tamil Nadu has been covered under this project. It ensures wider access to scholars while protecting India's literary heritage.
- E-Granth project by ICAR (Indian Council of Agricultural Research) has digitized thousands of books, research papers and indigenous agricultural practices.
- Platforms like Krishikosh provide free access to indigenous farming knowledge. It helps farmers' access traditional sustainable farming techniques using modern digital tools.
- Bhasha research and publication centre focuses on digitization of indigenous tribal knowledge related to medicinal plants and folklore. It helps in preservation of oral traditions through digital audio video archives in tribal language.
- Indira Gandhi centre for arts (IGNCA) digital archive focuses on digitizing Indian art, music, and cultural heritage. It also provides online access to India's vast intangible cultural heritage.
- Online yoga archive- Ayush digital resource was created by Ministry of AYUSH to globally promote India's yoga knowledge in collaboration with UNESCO.

These initiatives elucidate the capability of digital means and technology to empower indigenous communities by providing them a platform to share their knowledge with global audience. However, obstacles such as language barriers, funding, technological limitations, data privacy concerns and challenges in guaranteeing that indigenous communities are fully participating in the process of digitalization continue to pose threat to the widespread adoption of digital preservation techniques.

### **Significance of Preserving Indigenous Knowledge through Digital Means**

#### **▪ Social and cultural impacts**

By providing a platform to the indigenous communities to share their knowledge, digitization has empowered them to

establish their cultural identities. Moreover, it helps in fostering the intercultural understanding as non-indigenous people retrieve and learn about indigenous traditions, values and worldviews.

Virtual museums and digital archives can play a significant role in educating the younger generations within indigenous communities. These resources can serve as a medium for cultural transmission, confirming that the indigenous knowledge can be transmitted not only through traditional methods but by means of modern and accessible methods. The availability and easy access of digital platforms also allows for the dissemination of indigenous knowledge on a global scale, thus contributing to the preservation of valuable cultural diversity.

#### **▪ Educational Applicability**

The digitized indigenous knowledge system has a significant education value. The studies have proved that many of the indigenous communities' face challenges in maintaining the formal education system that directly reflects their rich customs and traditions. By encompassing indigenous knowledge into educational curricula with the help of digital techniques, educators can create a more inclusive environment that will automatically attain respect for indigenous ways of thinking.

Digitization of indigenous knowledge provides better opportunities for the cross-cultural education on a broader perspective among researchers, educators and the policy makers. It also has the potential to ensure the continued passage of indigenous traditions to forthcoming generations. The educational system will become more holistic in approach when the digitalization of indigenous knowledge is appreciated and used to the fullest extent.

#### **▪ Biodiversity conservation and sustainable development**

Indigenous knowledge system has a deep-rooted connection with the sustainable management of the natural resources. Traditional ecological system which includes a profound knowledge of plant and animal species, local ecosystems and the sustainable practices has been acknowledged for its contribution towards biodiversity conservation. Digitization of this valuable knowledge authorizes it to be incorporated into modern conservation strategies and policy making processes.

Digital platforms can open the doors for the easy collaboration of environmental organizations and the indigenous communities ensuring that conservation efforts are positively done by both the traditional as well as scientific methods. This association can lead to more sustainable development practices which respects both the ecological and cultural diversity.

### **Challenges and Limitations of Digitizing Indigenous Knowledge**

Despite the many advantages, several challenges constrain the effective digitization of indigenous knowledge system. One of the burning issues which always remains in the digitization of indigenous knowledge is the ethical question of ownership. Many indigenous communities are bothered about losing the control over their sacred knowledge once it is digitalized or made publicly available. There are fears of cultural misrepresentation, appropriation and exploitation when non-indigenous researchers or other institutions are

engaged in the process of documenting indigenous knowledge.

Another prevalent challenge which remains in the digitization process is the digital divide. Many indigenous communities still reside in rural or far-flung areas which lack access to the technologies required for participating in the documentation and digitalization process. The lack of reliable internet connectivity and access to digital media hampers the total involvement of these communities in the process of digitization of indigenous knowledge.

Additionally, the process of digitization of indigenous knowledge is a very culturally sensitive work and so it must be done by giving due respect to the people of this community. They should be involved in every stage of digitization from documentation to the dissemination to ensure that their work and rich heritage is respected. Without meaningful and active participation of the indigenous people the digitalization efforts may lead to misrepresentation and exploitation of their cultures.

### Some Recommendations

Based on the findings of this study several recommendations can be made to improve the documentation and digitization of indigenous knowledge.

1. **Community involvement:** Indigenous communities should have an active and meaningful participation in the digitization process to ensure that their knowledge is accurately represented and they can retain the control on its dissemination.
2. **Ethical guidelines:** Educators, researchers, organizations and government should adhere to the guidelines developed for the rights and interests of the indigenous communities in digital preservation context.
3. **Infrastructure development:** Efforts should be made by the policy makers to address the digital divide by providing indigenous communities with easy access to the technology and training to participate in the digitization process.
4. **Collaborative platforms:** Digital platforms that encourages the collaboration between indigenous communities, policy makers, researchers and educationists should be developed to ensure that digital preservation process is inclusive and sustainable.
5. **Cultural sensitivity:** Digitization efforts must respect the customs and traditional values of indigenous people confirming that their sacred knowledge is not made publicly available without their consent.
6. **Financial resources:** There should be adequate investments in digital literacy training that can empower communities to actively participate in digital preservation initiatives and ensure the long-term viability of indigenous knowledge.
7. **Legislative measures:** Governments and policy makers can frame robust policies which can serve as a solid foundation for the long-term sustainability of language and traditions.

### Conclusion

In this modern age, digital technology emerges as a proverbial torchbearer for learning and transmitting the ideas and thoughts so, it can be utilized to its maximum level for documenting the indigenous knowledge. The digitization of indigenous knowledge system provides an opportunity to promote and preserve the cultural heritage and wisdom in the realm of modern challenges. Although digital technologies hold significant promise for safeguarding the indigenous wisdom yet it is a moral duty of policy makers and educationists to carry out this work with total sensitivity, respect and inclusivity. By empowering the indigenous communities, ensuring ethical standards, and addressing the challenges of digital access, the documentation, dissemination and revitalization of indigenous knowledge can be intelligently used for future generations.

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