

AI AND AKWETE WEAVING INDUSTRY: BRIDGING THE GAP BETWEEN TRADITIONAL TECHNIQUES AND DIGITALIZATION

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ABSTRACT

We are leaving in an era where emphasis on digitalisation cannot be overlooked especially in this era of AI. Many industries globally and nationally are deemphasising traditional methods and embracing the new global reality known as AI. Akwete cloth weaving is a traditional Ndoki textile art practiced by Ndoki women of Ukwa/East Local Government of Abia State, Nigeria. It is one of the most popular Nigerian traditional textiles. This craft dates earlier than the 16th century but the closest recorded date remains 1500 which marked the period in which the Portuguese were trading on the Akwete and Ijebu cloths which were sold in Congo, Gold Coast and Brazil. The main trust of this paper is to investigate to what degree AI can be integrated into the Akwete weaving industry with a view to digitalizing and enhancing this traditional industry without necessarily altering the cultural significance and traditional techniques of the Akwete cloth weaving. This writer through the instrument of qualitative analysis will depend of historical oral interviews without neglecting the use of AI generated information in the conduct of this research. This researcher believes that AI will definitely enhance the Akwete cloth weaving especially in the aspects of design assistance and marketing of the products.

Keywords: AI, Akwete cloth, Weaving industry, traditional techniques, digitalization.

INTRODUCTION

Cloth weaving in Ndoki area is a traditional craft practiced by women of the various communities in Ndokiland that are renown for weaving the popular 'Akwete cloth' the economic significance of this industry in the economic landscape of Nigeria cannot be overemphasized. From the earliest times, man has been on the march to conquer his environment and the quest for survival has agitated the minds of human beings hence the need for an indigenous economy. Man's primary and basic needs were food, shelter and clothing and in order to realise these needs, man has applied his ingenuity towards creating an ever improving condition of living for himself. He has since the pre-colonial

times evolved arts, crafts and skills necessary to better his condition.

Spinning and weaving are some of the earliest ingenuities evolved by man in recorded history which the latter is ascribed to the Ndoki people who are today found in Abia, Rivers and Akwa Ibom States. The reasons for this dispersal of a people with common cultural and linguistic heritage need not border us at this juncture but is reserved for a subsequent chapter. The actual date when this indigenous craft started is yet to be unravelled but available information both from oral sources and from archival materials suggests that weaving in Ndokiland i.e. Akwete cloth has been in existence long before the arrival of the Europeans. The above argument is buttressed by Elizabeth Isichie's view that "when the Europeans first reached the Delta Ibos, it was a self-sufficient society".¹

The imperativeness of traditional economies in indigenous communities goes beyond the economic realm - they are more than just livelihoods providing subsistence and sustenance to individuals or communities. It is clear that the Ndoki indigenous weaving industry have been decimated in the course of history. Yet it is accurate to argue that this indigenous industry is no longer able to sustain the communities of Ndoki which was the case during the pre-colonial, colonial and the mid-1990s when it was a viable economy. The weaving industry in Ndoki land provided employment for women and by extension helped to reduce the unemployment problem in Nigeria. Several variables which have been discussed in my PhD dissertation are responsible for the lack of interest and the sustenance of this weaving industry. Some of them include: availability of market, colonial state regulations, environmental factors, and external intrusions. Often when the destructive effects of the global capitalist economy are being discussed, the focus should be on examining more closely the effects of the global market economy on indigenous economies especially the weaving industry in Ndokiland.

Hence it has become pertinent to examine this industry with a view to understanding its nature, characteristics, challenges and prospects and the possibility of integrating Artificial Intelligence (AI) into the industry with a view to digitalizing and enhancing this traditional industry without necessarily altering the cultural significance and traditional techniques of the Akwete cloth weaving. Suffice to state that the incorporation AI into the Akwete cloth weaving industry will not only help in its technological advancement but will help in reviving the waning weaving culture of the Akwete cloth in Ndokiland thereby bridging the gap between the traditional techniques and digitalisation.

NDOKI AND AKWETE CLOTH WEAVING IN PERSPECTIVE

Ndoki is an ancient kingdom that is today balkanized into three different states in Nigeria. Ndoki majorly in Ukwa/East of Abia state expands to Rivers State, and shares common boundary with Akwa Ibom State. Some of its communities are found in Rivers State and some in Akwa Ibom. These populations were carved out of their former

homeland in 1996 and handed over to Rivers State and Akwa Ibom respectively. Despite this unfortunate military mistake but best described as share aberration, the Ndoki people still regard themselves as one indivisible entity.

The writer intends to unravel the origin, characteristics and content of the indigenous cloth industry of the Ndoki people and its contributions towards the growth and development of the Nigerian economy. It is pertinent to observe that weaving in Ndoki land according to an oral tradition did not start in Akwete but the first to weave in Ndoki were the Obunku women.² This was a view as expressed by a 90 years old Dada Nne Johnson of Obohia village but from other sources the above submission have been faulted as it is believed that it was Dada Nwakata from Akwete that popularised the art of weaving and was the first to weave the modern Akwete cloth in Ndoki land. By implication therefore, before the modern was the ancient which was a craft done by women in Ndoki land and not necessarily a craft evolved by Dada Nwakata. It is equally controversial to conclude that it was Dada Nwakata that invented the art of weaving in Ndoki. All these controversies were clarified in the cause of my PhD voyage into this area.

To state that cloth weaving Ndoki began in Akwete during the 19th century cannot be correct viz a viz weaving in Ndoki ancient kingdom. But what is actually the fact is that the origin of this craft belongs to the antiquity and what is known is the origin of the modern which may be traceable to Nwakata. We have also argued at some point in our earlier seminar presentations that the name “Akwete cloth” is a misconception. If the simple reason for ascribing the cloth woven by the Ndoki people was that Dada Nwakata was among the early weavers in Akwete, then it is wrong and must be re-examined. The question which those who ascribe the origin of this cloth to Dada Nwakata is, what is actually the first name of this woman in question?, Do the name Nwachukwu Akata in anyway related to Umumanya village in Akwete where this woman is married to one Mr. Okere? Why is her name subsumed in her maiden name? But if this was done in view of the fact that the legend Nwakata invented the art of weaving in Ndokiland who coincidentally was married to an Akwete indigene then it may not be correct calling it Akwete cloth.

Aronson Lisa one of the foremost researcher in this field has this to say in relations to a clue that might lead to actual origin of cloth weaving in Ndoki land:

In the 16th century and later, Portuguese slave traders bought huge numbers of indigo dyed cloths woven on vertical looms from Ndoki and Ijebu for sale in Congo, Gold Coast and Brazil. The earliest known example of *Ikaki* cloth in the Royal Scottish Museum, Edinburgh dates as early as 1790. The cloths were once traded along the coastal lagoons to the Niger Delta region where they became known as *Ikakabite*... and highly prized in local rituals.³

Anyways, this debate need not bother us so much in this paper.

THE NATURE OF AKWETE CLOTH WEAVING

Akwete cloth production started first on a modest scale in houses for the purpose of subsistence by women who traditionally wove on an upright rectangular frame loom usually referred to as the vertical loom (Nkwe). See figure 1. Weaving was done within the household and it involved normally the women and the girl children who assisted in the winding of yarn. In the past, weaving was not the full time specialty of many women, but is numbered among the range of domestic skills that women should acquire. In the case of Ndoki, weaving was mandatory for women and girls.

Figure 1



Photo by Clement Chimezie Igbokwe

Cloth weaving in Ndoki is not done by all the communities but predominately by few of the Ndoki communities for the reasons yet to be investigated. Hand-woven cloths from Obohia, Ohanso, Ohambele, Obunku and Akwete all in Ndoki in Ukwa East of Abia state Nigeria are woven by women. It largely consists of cotton, which is the most common material used in the weavings. The rayon supplementary

weft patterning was added over the cotton during the weaving process. This cloth was woven in one piece. The Ndoki cloths are distinguished from other textiles produced on the vertical loom by their size. “Akwete cloth” as it is called range from 44 inch to 46 inch matching pairs, which are left separate. This is compared to non- Akwete cloths which are composed of strips of cloth approximately 20 inches wide, and which are sewn together. Both ends of this cloth are tasselled. This decorative effect is achieved by grouping together the ends of the warp threads.

It is imperative to state that weaving in Ndoki is purely women's occupation. The younger girls learn them from their mothers by observation while they did weave. The girl child starts weaving at a very tender age using a kitchen chair and gradually on a lowered vertical loom. There is no doubt in the fact that this art was a nature gift as women married into the Ndoki land cannot make them except they were taught. It is also obvious that those who learnt to weave from the Ndoki women, weave only the pattern taught them and no more, while women born in the land weave any pattern presented to them or as they imagine. As earlier stated, most designs are revealed to them in the dream with their names. See figure 2

Figure 2



Generated online

It is evident from the study that men were not barred by tradition from cloth weaving in other parts of Nigeria as the case was in Ndoki Eastern part of Nigeria where it was a taboo for men to engage in weaving. In Akwete for instance, there was the story of a young man who in quest to make ends meet took to weaving in order to find the wherewithal to maintain his aged mother. The entire community rose up against him, accused him of having broken a taboo against the earth goddess and ostracized him. His sudden and untimely death thereafter was attributed to his having desecrated the land.⁴

Names like Ikaki, Otobo, Nnadede, Popo, etc were among the popular varieties of styles and patterns of the Akwete cloth. In the earliest times, only royal families could wear the 'Ikaki' motif, and if an ordinary person attempts to wear it, he could be sold into slavery. The weavers claim that certain motifs and designs were revealed to them in their dreams.⁵

Sample of Ikaki and other Motifs

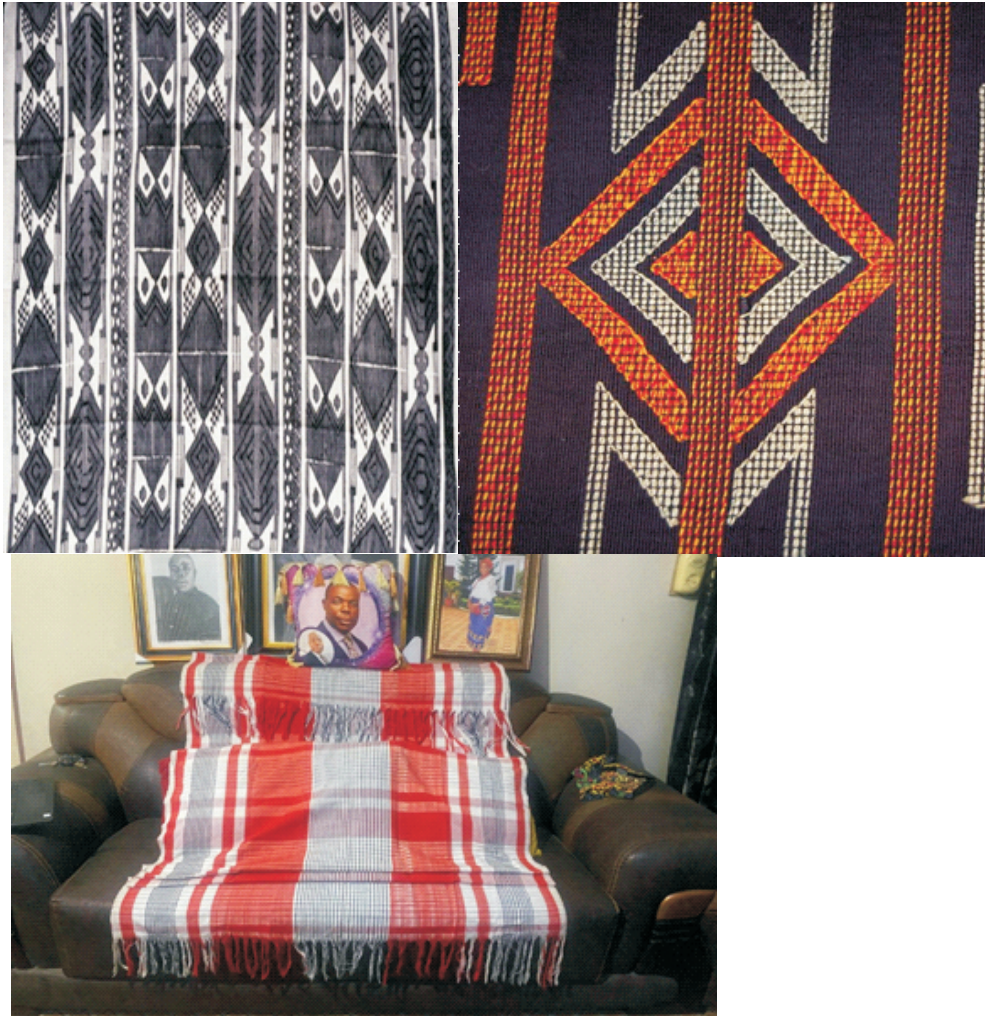


Photo by Clement Chimezie Igbokwe

ARTIFICIAL INTELLIGENCE AND AKWETE CLOTH INDUSTRY

We are in era of unstoppable bandwagon of Artificial Intelligence, refusing to join now is not a good option because those who will join later may be relegated to the back bench of this moving train. Suffice to observe that number variables have and are still impacting on the Akwete weaving industry negatively. It is upon this observation that the researcher has decided to investigate the roles AI could play in bridging the gap between the traditional techniques and the digitalization of the industry. The research is of the view that the incorporation of AI has significant roles it can play which could be germane towards the revitalization this waning industry.

Akwete cloth weaving is a traditional Nigerian textile art form. AI can potentially enhance Akwete cloth weaving in various ways: However, it's essential to consider the cultural significance and traditional techniques of Akwete cloth weaving when integrating AI.

Modernizing the weaving techniques/tools through the involvement of AI can be very significant in the following ways:

- i. Design automation: AI generates patterns and designs, increasing efficiency.
- ii. Predictive maintenance: AI-powered sensors can detect equipment issues, thereby reducing downtime.
- iii. Quality control: AI-inspected fabrics detect defects, improving quality.
- iv. Supply chain optimization: AI streamlines production planning and inventory management.

Integrating AI into traditional Akwete cloth weaving can be done in a way that respects and preserves the cultural heritage of this ancient craft. Here are some potential ways to do so:

Design Assistance

- i. Pattern generation: AI algorithms can generate new patterns inspired by traditional Akwete designs, allowing weavers to explore new ideas while still honouring the traditional aesthetic.
- ii. Colour palette suggestion: AI can suggest colour combinations based on traditional Akwete colour schemes, helping weavers to create harmonious and authentic designs.

Weaving Assistance

- i. Digital loom: AI-powered digital looms can assist weavers in creating intricate patterns, reducing errors, and increasing efficiency.
- ii. Thread management: AI can help manage thread usage, reducing waste and optimizing the weaving process.

Preservation and Documentation

- I. Digital archive: AI can help create a digital archive of traditional Akwete

designs, patterns, and techniques, preserving the cultural heritage for future generations. By implication, AI can help document and preserve traditional Akwete designs.

- ii. Design analysis: AI can analyze traditional Akwete designs, identifying patterns and motifs that can be used to inform new designs.

Marketing and Sales

1. E-commerce platform: AI-powered e-commerce platforms can help Akwete weavers reach a global market, increasing sales and exposure for their traditional crafts.
2. Personalized recommendations: AI can provide personalized recommendations to customers, helping them find Akwete cloth products that match their preferences.

Key Considerations

1. Collaboration: It's essential to collaborate with Akwete weavers, ensuring that AI integration respects and preserves traditional techniques and cultural heritage.
2. Cultural sensitivity: AI integration should be done in a way that is culturally sensitive and respectful of the traditional craft.
3. Capacity building: AI integration should also focus on building the capacity of Akwete weavers, providing them with the skills and knowledge needed to effectively use AI tools.

By integrating AI in a thoughtful and culturally sensitive manner, Akwete cloth weaving can benefit from new technologies while preserving its traditional heritage.

CONCLUSION AND SUGGESTIONS

Weaving of the popular Akwete cloth by most Ndoki communities started first on a modest scale in the houses for the purpose of satisfying family needs by women who traditionally wove on an upright rectangular frame loom usually referred to as the vertical loom (*Nkwe*). This cloth weaving which was done within the household by women and the girl children who assisted in the winding of yarn has grown over time to large scale entrepreneurial practice with apprentices and has formed part of the economy of the Ndoki people.

Since inception of this practice, the technology has remained the same without any form of technological innovations especially in terms of digitalisation of the industry. It was based on this observation that the researcher was motivated to explore the degree to which the involvement of Artificial Intelligence could help in revolutionising the Akwete weaving industry.

It is imperative to observe that although there are no noticeable innovations in terms of the technological tools involved in the weaving but there several innovations in terms of designs and materials. The researcher is indeed optimistic that with the involvement of AI, the industry is on the verge of breaking even in the global textile industry. The researcher observations that:

- 1 AI have lots of potentials toward the digitalisation and automation of the Akwete weaving industry
- 2 People who are embracing AI should be careful because it is not a perfect tool.

He further added that although this industry is beckoning for technological innovation, in doing so through the involvement of AI, care is required to ensure that the indigenous techniques are not compromised.

ENDNOTES

1. E. Isichie, *A history of the Igbo* (London: Macmillan 1977), 13.
2. Oral Interview granted by Dada Nne Johnson from Obohia Community 2010 Age 98. Cited in my Ph.D dissertation 2016
3. A. Lisa, "Popo Weaving: The Dynamics of Trade in South-eastern Nigeria." *African Arts* 15 (May 1982), 43–47
4. Ukeje, L.O., Weaving in Akwete. *Nigerian Magazine*., 1962. 74: 32-42.
5. Oral Interview granted by Elizabeth Igbokwe from Obohia Community 2009 Age 72. Cited in my Ph.D dissertation 2016