Addis Ababa University

College of Natural and Computational Sciences

Schoolof Information Science

Designing Knowledge Management Framework for Facilitating Indigenous Craft Knowledge Preservation and Transfer: The Case of Cloth Production at Shiromeda

By:

Chalachew Mulualem

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By: Chalachew Mulualem

Advisor: WondwossenMulugeta (Ph.D)

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Name and signature of Members of the Examining Board

Name	**Title**	**Signature**	**Date**
Dr. WondwossenMulugeta,	**Advisor(s),**	_____	_____
Dr. TemtimAssefa,	**Examiner,**	_____	_____
Dr. Million Meshesha,	**Examiner,**	_____	_____

DECLARATION

I declare that this thesis is my original work and has not been presented for a master's degree at any other university and all the sources of the material used for the thesis have been accordingly acknowledged.

Student

Chalachew Mulualem

_____

This thesis has been submitted for examination with my approval as university advisor.

Advisor

WondwossenMulugeta (PHD)

_____

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ABSTRACT

This study aimed to investigate the Design knowledge management framework that preserves, and transfers indigenous craft knowledge of Cloth production practices in local communities of Shiromeda, Addis Ababa, Ethiopia. The paper talks around the significance of indigenous Knowledge, particularly the traditional cloth production indigenous knowledge, of the Ethiopian cultural cloth production sector. The study distinguishes the sources where the indigenous knowledge resides and examines the current knowledge sharing culture between different partners in connection to traditional cloth production; then adjusts different concepts from pre outlined partnered Knowledge Management (KM) models to plan an Indigenous Knowledge Management Framework (IKMF) custom-made to Ethiopian cultural cloth setting. Mixed approach is utilized to examine existing gaps that will likely be started by different relevant attributes. Qualitative approach is employed for interviewed data analysis and quantitative approach for analyse and drive conclusion from questionnaire data. This examination substantiated by different sources to assemble knowledge, examine and at last created an IKMF that envelops a cyclic Indigenous Knowledge preserve and transfer processes with the thought of different factors extracted from collected data. Accordingly, 30 key respondents were chosen through purposive sampling and were used for the quantitative data collection. For the qualitative data semi structured interviews were used for data collection where 26 respondents were interviewed and analysed using thematic content analysis moreover qualitative data were analysed using thematic approach. The results showed that the local communities shared IK of traditional cloth production by using traditional practices. Poor knowledge sharing and preservation culture, lack of trust, political dimensions or social status, poor recognition of IK holders, lack of an awareness are the barriers of effective management of IK of traditional cloth production practices in the study community.

Hence, we develop an ICK framework that will support indigenous knowledge preservation and transfer. The framework also facilitates keeping the traditional cloth production knowhow and activities among community, craftsman and stakeholder organizations so as to facilitate preservation and transfer to new generations.

Key words: Indigenous Craft Knowledge, Knowledge Management, Knowledge Management Framework,Cloth Production

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List of Abbreviations or Acronyms

AACTB----------Addis Ababa, Culture and Tourism Bureau

DIKW ----------Data, Information, Knowledge and Wisdom

DSR----------Design Science Research

FSME ----------Federal Small and Medium Enterprise

FSMMIPA------Federal, Small, Medium, Manufacturing, Industry, Promotion and Authority

ICK----------Indigenous Craft Knowledge

ICT ----------Information Communication Technology

IK ----------Indigenous Knowledge

IKMF ----------Indigenous Knowledge Management Framework

KM ----------Knowledge Management

KMF ----------Knowledge Management Framework

KP ----------Knowledge Preservation

KT ----------Knowledge Transfer

MCT----------Ministry of Culture and Tourism

SECI----------Socialization, Externalization, Combination and Internalization

CHAPTER ONE

INTRODUCTION

1.1. Background

Nowadays, there is a global shift towards mesmerisation by modern technologies and this buries their traditional relationship with the natural world. Hence, the concern of losing indigenous knowledge revolutionizes efforts towards preservation (Botangen et al., 2018). Indigenous people and their knowledge are now becoming prominent for the successful development of projects and policies (Lalonde, 1991).

Due to this indigenous knowledge (IK) has gained momentum for its importance as a strategic resource for development in the lives of the majority of the world's population. IK plays a significant role in various aspects of life like poverty alleviation, medicinal treatment, conservation of natural resources and it is also helpful in decision-making and problem-solving at local, national and international levels (World Bank, 1998).

It is important that indigenous knowledge (IK) needs to be managed because it is at risk of becoming extinct, if appropriate measures are not taken to preserve and manage it. Notably, much of indigenous knowledge (IK) is preserved in the memories of elders, thus gradually disappearing due to loss of memory and death (Owiny & Maretzki, 2014).

Moreover indigenous knowledge (IK) is predominantly tacit or embedded in the experiences and/ or local knowledge of the community. It is commonly exchanged through personal communication and demonstration and gets transmitted from master to apprentice, from parents to children and from one neighbour to the other (Owiny & Maretzki, 2014)

The foundation knowledge of IK is gradually disappearing, in our country, because there are no tangible efforts to preserve and transfer to the next generation moreover there is no proper mechanisms for capturing, storing, processing, retrieving and disseminating valuable assets for future generations.

In the new economic era, knowledge has become the primary source of wealth and consequently,the term knowledge economy or knowledge age. Knowledge is a commodity or intellectual asset which is valuable to people. Knowledge as a commodity has the following

properties that is sharing of knowledge could not lose it rather enhance it, besides this knowledge could be updated (Nduka & Oyelude, 2019).

The new generation has modified the traditional clothes in a way that the cloth becomes more fashionable with the reflection of the modern clothes. This is a good cloth production preserving the identity and style of the traditional cloth production. Here,our focus is preserving the original Ethiopic craft production knowledge for the future generation so as to use directly or customize as they need.

Ethiopia which has a long history was participating in ancient civilizations through the help of indigenous knowledge that was highly embedded in local culture.

The value and relevance of indigenous knowledge has been recognized as an important factor for survival of human societies. This knowledge also indicates a closer of people with the natural world. The relationship has been waiting for millions of years in the evolutionary development processes, but is being suppressed by the element of modernity. Hence, there have been significant global movements among concerned bodies and communities to preserve endangered indigenous knowledge for future generations (Sahoo, 2015).

Crafts like pottery, weaving, and basketry are ancient crafts work, those are still in use which could be a means of livelihood for the craftsmen and women.

Ethiopia, which has a long history and ancient civilizations, consists of rich indigenous knowledge systems which are deeply embedded in local culture and social politics. Regarding society's cultural knowledge system, weaving can be mentioned as examples. Still, in different parts of Ethiopia hand weaving has been a means of livelihood (Rahel Zelalem, 2017). Even today, in Addis Ababa particularly around Shiromeda there are many traditional cloth makers. They produced cloth with different color depends on the color of threads used.

1.2. Statement of problem

Indigenous knowledge is acquired by local people through the accumulation of experiences, informal experiments, intimate understanding of the environment in a given culture , and the knowledge is exchanged through personal communications, demonstrations from the teacher to the apprentice (Owiny & Maretzki, 2014). Warren, (1991) stated that preservation of indigenous knowledge is critical, because it ensures the continuation of the community and its knowledge. Hence, indigenous knowledge should be preserved otherwise knowledge will

be lost through the death of elders and traditional leaders that will remain inaccessible to other communities or to the next generation.

Digital Cultural heritage preservation has got more attention globally, but to the contrary more traditional practices are fading due to major rural urban migration of indigenous youth, thereby interrupting traditional knowledge transfer and preservation mechanisms. The knowledge left with community elders is slowly being lost as the elders are passing on (Sahoo, 2015). Therefore, it is true that ICK is in the danger of being obliterated due to a number of factors such as the lack of interest from younger generations, low life expectancy where people die before transferring it to the next generation and it not being documented. This is due to the fact that ICK, by its very nature, is generally known to have been passed on from generation to generation through oral tradition (Rahel zelalem ,2017) indigenous craft knowledge particularly traditional cloth production has lost due to different circumstances such as advancement of technology, the new generation interest shifts towards scientific knowledge, the attitude of the society towards the task is undermined by the society, even it is described as “primitive”, “backward”, “outdated” all these mentioned factors plays greet role for the loss of indigenous craft knowledge in particular to traditional cloth production in Ethiopia.

Due to this dissemination of modern technology globally as well as increasing the interest of the new generation towards the western wearing culture becomes one of the major problems that could hinder indigenous craft knowledge preservation in our society specially for the young generation.

In addition to this indigenous craft knowledge holder are too aged that also cause memory loss and even pass away having accumulated prominent indigenous craft knowledge assets become in danger of being lost without preserving and transferring to the next generation (Nduka & Oyelude, 2019).

Indigenous knowledge and skills means of transmission is still (word of mouth) by face to face communication or oral tradition that could not allow the opportunity to transfer and even receive indigenous craft knowledge who has an impairment in the means used for communication, moreover it is widely used in rural communities, indigenous craft knowledge has not been adequately documented and is not readily available outside these communities (Owiny & Maretzki, 2014).

As it is seen papers regarding ICK observes general problems and its own corresponding solutions, moreover ICK particularly traditional cloth production potential of shiromeda community is not well investigated, however (Rahel zelalem, 2017), a local research who conducted a research on identifying indigenous knowledge transfer methods of shiromeda weavers community figured out and touch specific problems. However, proposing IK as a system and model to become sustainable through education moreover did not design a framework which can preserve and transfer the intended ICK.

The traditional cloth production sector in Ethiopia is weak and needs to be improved the way knowledge is transferred through master apprentice relationships that apprentice has often learned such indigenous craft knowledge of traditional cloth production under instruction from master craftsmen. It has been observed that there is a lack of tools aimed at preserving and disseminating indigenous cloth production knowledge. So there should be a knowledge management framework mechanism to ensure knowledge preservation and transformation to the next generation being presented in a way that can allow to keep it for the future.

The traditional cloth production could be the foundation for facilitating industrialization that our country Ethiopia demands too. So there should be mechanisms for the indigenous craft knowledge of traditional cloth production to preserve and transfer to the Ethiopian next generation. Accordingly, we design a knowledge management framework for preserving and transferring indigenous craft knowledge of traditional cloth production.

Hence, this research aims to develop an indigenous craft knowledge framework of traditional cloth production for preservation and transfer over the existing artefact knowledge management framework in order to preserve and transfer indigenous knowledge of traditional cloth production of shiromeda found in Addis Ababa.

1.3. Research questions

- How the proposed indigenous craft knowledge frameworks preserve the traditional cloth production at shiromeda?
- How the proposed indigenous craft knowledge framework transfers the traditional cloth production knowledge?
- How ICK framework can be best applied for the preservation and transfer of craft indigenous knowledge to future weavers in adult education programs?

- What are the current practices and requirements for enhancing indigenous craft knowledge management?

1.4. Objective of the study

1.4.1 General objective

The main objective of this research is to design a knowledge management framework that supports the preservation and transfer of indigenous craft knowledge.

1.4.2 Specific objective

- To identify indigenous knowledge management requirements that can be a foundation to design a knowledge management framework.
- To design knowledge management framework that could preserve indigenous craft knowledge of shiromeda traditional cloth production.
- To distribute questionnaire , collect data and analyse data from target audiences
- To explore indigenous knowledge practices in shiromeda.
- To investigate the role of indigenous knowledge holders in preserving embedded tacit knowledge.
- To evaluate or test the proposed framework.

1.5. Significance of study

This study has been important because the developed framework would contribute in sustaining indigenous craft knowledge by alleviating problems emerging through migration, urbanization, modernization, limited or lack of social coherence and death of knowledge holders. The study will have practical significance for the community, adult educators, future weavers, policymakers and researchers in different ways. The following can be taken as specific significances of the study:

- The importance of the study lies in documenting and protecting IK from extinction. Thus, it may help the Ministry of culture to properly document and protect ICK preservation and transformations methods.

- The study will contribute to the utilization of ICK to meet community practical fields.

The study may help Shiromeda weavers association in order to maintain and expand their cloth production ICK keeping the traditional cloth production.

The study can also serve as a stepping-stone for researchers who are interested to conduct further studies in the area and also it serves as input for adult education policy planners and other related experts.

1.6 Scope and Limitation of the Study

The main concern of this study is to examine ICK preservation and transferring framework on traditional cloth production. The study includes identifying the most responsible agents in the ministry of culture and tourism, and design the ICKF for knowledge preservation and transformation sake. The study was nice if it had a national level coverage however due to time and budget constraints, moreover indigenous craft knowledge holder can be found who lives in Addis Ababa particular to shiromeda due to this the study was mainly delimited to Shiromeda weaver's community who produces traditional cloths.

CHAPTER TWO

LITERATURE REVIEW

2.1. Knowledge

Knowledge is defined as a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences. It originates and is applied in the mind of knowers. It is embedded in documents or repositories, organizational routines, processes, practices, and norms. It is a mixture of various elements; it is fluid as well as formally structured; it is intuitive and therefore hard to capture in words or understand completely in logical terms(Stevenson, 2000).

Knowledge is now replacing the former production factors such as the traditional labour force, capital and land to be the important core resource of organizations; and knowledge is the fundamental guarantee for organizations to maintain their competitive advantages (Xu et al., 2009).

Knowledge is information that has been culturally understood such that it explains the how and why about something that can provide insight and understanding into something (Jennex & Bartczak, 2013).

Nowadays knowledge is the most valued asset in the emerging competitive environment, leading to the improvement of strategic, comprehensive, holistic and implementation of knowledge management in order to enhance the processes and get competitive advantage (Mansour et al., 2011).

2.1.1 Hierarchy of knowledge

It begins with data, takes a few steps and ends with wisdom. The steps between data to wisdom are named as hierarchy of knowledge. As indicated in the hierarchy, accumulating data gives information, and accumulating information gives knowledge and lastly knowledge is transformed in to wisdom(Allen, 2004)

The processes involved in the transformation of an entity at lower level in a hierarchy (that is data) to an entity at a higher level in the hierarchy (that is information), is that data can be

used to create information; information can be used to create knowledge, and knowledge can be used to create wisdoms(Rowley, 2007).

The relationship between knowledge and wisdom as well as the foundational concepts of data and information, may provide a context for achieving more convincing success in knowledge management ,and more importantly organizational achievement(Rowley, 2007).

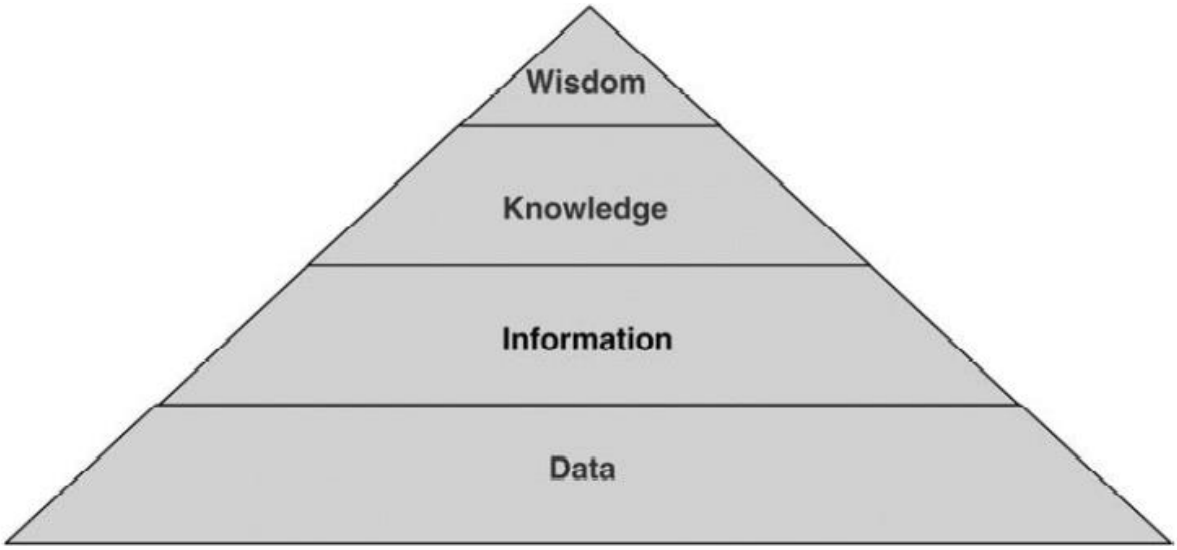

Figure 1: DIKW pyramid,(Rowely,2007)

2.1.1.1 Data

Data is a number or word or letter without any context(Girard & Girard, 2015). Davenport, Prusak& Webber (1998) also define data as a set of discrete, objective facts about events. In an organizational context, data is most usefully described as structured records of transactions. Data describes only a part of what happened. It provides no judgment or interpretation and no sustainable basis of action. Data says nothing about its own importance or irrelevance, but data is important for organizations, because it is essential raw material for the creation of information(Stevenson, 2000) .Moreover data is actually un structured records that do not have any value for themselves (Hebibi et al., 2019).

2.1.1.2 Information

Information is data put into context. Information is a collection of data and associated explanations, interpretations and other textual material concerning a particular object, event or process (Bergeron, 2003). Moreover data and information are used interchangeably, but when the data is analysed it becomes information; people have knowledge about something when they are aware of and understand information (Zhong, 2019).

2.1.1.3 Knowledge

Knowledge is a synthesis of information, experiences that have practical value that can lead to activity. Knowledge can be also enhanced by organized communication (merging) of people with different profiles and interactions (Hebibi et al., 2019). According to (Kakabadse et al., 2006) knowledge is the result of experience and the sum of human cognitive experience. In addition to this knowledge is also stated as accumulation of similar information and it is the abstraction and generalization of information to help to achieve specific objective (Subramani, 2015).

2.1.1.4 Wisdom

According to(Rowley, 2007) wisdom is the ability to increase effectiveness. Wisdom adds value, which requires the mental function that we call judgment. The ethical and aesthetic values that implies are inherent to the actor and are unique and personal.

Tacit knowledge covers knowledge that is unarticulated and tied to the senses, movements skills, physical experiences ,intuition or implicit rules of thumb (Nonak, 2009). Moreover according to (Berman, 2002)tacit knowledge is the source of competitive advantage for the firms.

Nowadays too much is said about organizational knowledge which has occurred due to knowledge society and information age. There are two types of knowledge namely tacit and explicit. According to(Lin, 2019) knowledge is classified into two where: the explicit knowledge represents the knowledge we are aware of and capable of codifying and transferring through formal language. Explicit knowledge is tangible that can exist in physical form and could be included in magazines, newspapers, documents and drawings. However tacit knowledge is found in the head of humans that could be intuitions, un articulated mental models or embodied technical skills and it needs to be obtained through practice and experience where it is difficult to express it in words(Schultze, 2013). Moreover according to (Alhawari) tacit knowledge is experimental, intuitive, and experience based knowledge that cannot be articulated in formal language and even difficult to share and communicate. Interaction between tacit and explicit knowledge generates or creates new knowledge.

According to Zhong, (2019), explicit knowledge is presented in the form of books, documents, which can be easily communicated with others, whereas tacit knowledge is a kind of experience and practice.

2.1.2 Knowledge conversion

According to Nonaka et al., (1994), knowledge creation is a dynamic process, in which the interaction between tacit and explicit generates new knowledge.

Nonaka's SECI model, which is a conceptual framework for the knowledge creation processes, identifies four modes of knowledge conversion, such as socialization, externalization, internalization and combination (Ikujiro Nonaka, 1996).

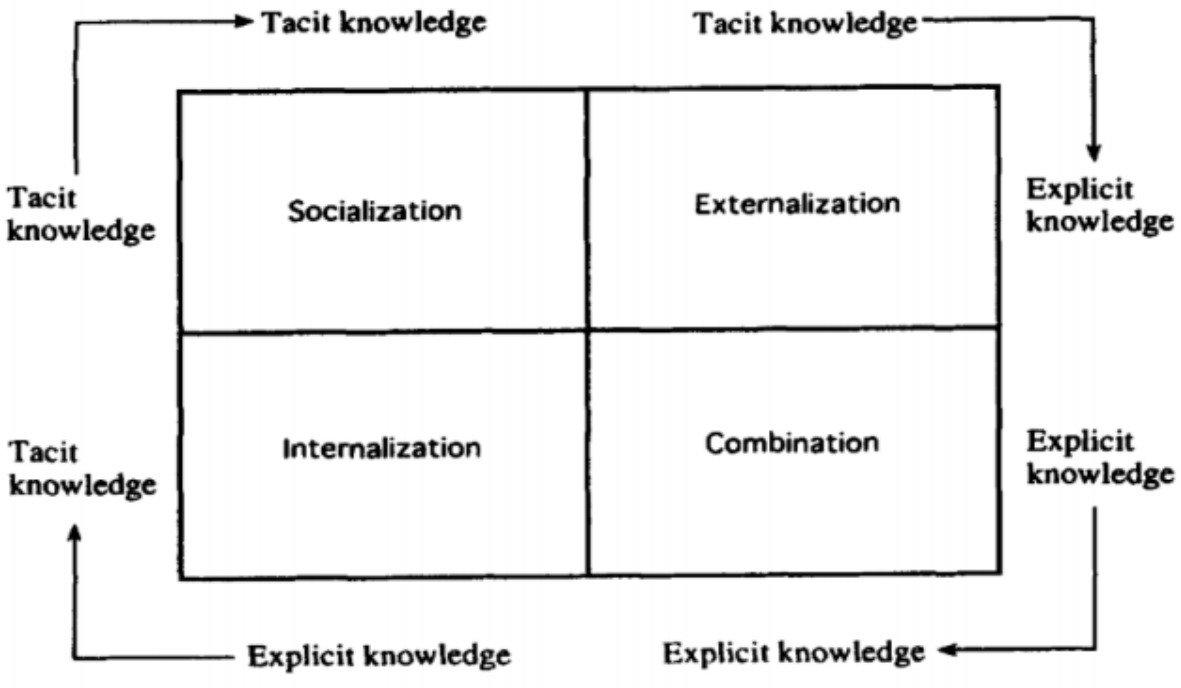

Figure 2 : Four modes of knowledge conversion (Nonaka, 1994)

I. **Socialization**: is a process of creating common tacit knowledge through shared experiences. The tacit knowledge of one person is shared and transmitted to another person and it becomes part of the other person's tacit knowledge.

II. **Externalization**: is a process of articulating tacit knowledge into explicit knowledge as concepts and or diagrams. Here the tacit knowledge in the brains of experts are articulated and expressed as concepts or drawings, thus becoming explicit knowledge that can be further studied and refined.

III. **Combination**: is a process of assembling new and existing explicit knowledge into a systematic knowledge. It is the combination of a newly created concept with existing knowledge to produce something tangible.

IV. **Internalization**: is a process of embodying explicit knowledge into tacit knowledge or an individual's know-how or operational knowledge. Learning by doing is a good example for this the instructions are learned and become part of the person's tacit knowledge.

2.2. Knowledge management

Knowledge management refers to identifying and coordinating the collective knowledge of the organization to help the organization to compete and to promote the flow and sharing of knowledge, moreover knowledge management is stated as the processes of creating, storing, transferring, and applying knowledge (Lin, 2019).Knowledge management is not one dimensional, but a dynamic continuous organizational phenomenon, in addition its knowledge management processes, resource requirements, and potential methods and tools used vary depending on the type, scope and characteristics of knowledge management processes. Knowledge management includes different interdependent processes of knowledge creation, knowledge storage, knowledge transfer and, and knowledge application(Lin, 2019).

2.2.1 Knowledge creation

Knowledge creation involves nurturing new content or replacing existing content within the organization implicit or explicit knowledge, moreover through social, collaborative processes , and individual cognitive processes, knowledge is created, shared, enhanced, magnified , and rationalized in an organizational context (Grant, 1996).

2.2.2 Knowledge storage

Knowledge storage involves acquiring knowledge from members of the organization or external sources. Organizations are also forgetting while creating knowledge, therefore organization memory that constitutes an important part of organizational knowledge may be lost hence preserving it is important (Nonaka & Toyama, 2003).

2.2.3 Knowledge transfer

Knowledge transfer exists at a different level that is the transfer of knowledge between individuals, from individuals to explicit knowledge resources, from individual to teams, between teams, across teams and from team to organization. The knowledge shared or transferred by the individuals could be tacit or explicit where the explicit knowledge could be shared through verbal communication where tacit knowledge gained by the recipient from the

source through observation, socialization and apprenticeship that creates opportunity to work alongside (Bartol & Srivastava, 2002).

2.2.4 Knowledge application

It is known that knowledge itself may not achieve the competitive advantage of the enterprise rather its competitive advantage is derived from the application of knowledge. It is only possible through exerting the role of knowledge using knowledge (Akoka et al., 2019).

According to Wiig,Hoog, &Spek, (1997) knowledge management is the systematic, explicit and deliberate building ,renewal and application of knowledge to maximize an enterprise's knowledge related effectiveness and returns from its knowledge assets. Moreover knowledge management could affect what is done, how it is done, and how well it is done. Knowledge management is also stated by (Goh, 2005) as a systematic leveraging of data, information, skills, skills, expertise, and various forms of assets and capital to improve organizational innovation, responsiveness, productivity and competence. Since there exists unstable changes, and strong competitive market, knowledge plays a major role in establishing the company's position in the market by adopting knowledge management in their business processes.

Moreover according to the perspective of (du Plessis, 2007) and Boon (2004:74) knowledge management is a planned, structured approach to manage the creation, sharing ,harvesting and leveraging of knowledge as an organizational asset to enhance a company's ability speed and effectiveness in delivering product or services for the

In perspective knowledge management is a comprehensive and conscious collection of the organization, sharing and analysis of knowledge, which are gathered from various resources, documents and experiences. Knowledge management can help for r idea generation and innovation, change management and customer intelligence (Zhong, 2019).

According to Karemente et al., (2009) knowledge management is the processes by which knowledge is acquired, created, communicated, shared, applied and effectively utilizing and managing in order to achieve the organizations existing and emerging needs. Some of the conditions for knowledge management to occur includes information overload, technology advancement, increased professional specialization, competition, workforce mobility and turnover and capitalization of organizational knowledge (Karemente et al., 2009).

2.3. Indigenous knowledge

The expression “traditional”, local and indigenous are used interchangeably, but indigenous knowledge is more popular than others have. Indigenous knowledge has been defined as “the local knowledge – knowledge that is unique to a given culture or society. IK contrasts with the international knowledge system generated by universities, research institutions and private firms. It is the basis for local-level decision-making in agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in rural communities.

Indigenous knowledge is the local knowledge that is unique to a given culture or society(Owiny & Maretzki, 2014).

According to Ed et al., (1992) indigenous knowledge is also defined as a systematic body of knowledge acquired by local people through the accumulation of experiences, informal experiments and intimate understanding of the environment in a given culture.

2.3.1 Indigenous knowledge Taxonomy

According to Jessica Slade and Pak Young (2014) types of indigenous knowledge within communities can be directly related to the experiences that are generated by the people in these communities .On this view, types of IK are explicit indigenous knowledge and tacit indigenous knowledge.

Anand, Ward, & Tatikonda (2010) define explicit knowledge as “academic knowledge or “know-what” that is described in formal language, print or electronic media, often based on established work processes, use people-to documents approach. Explicit indigenous knowledge refers to traditional knowledge that is easily articulated, expressed, communicated and recorded. The nature of explicit knowledge is that it is easy to store, transfer and communicate with others. As the erosion of explicit IK and indigenous communication are increasing, the need to transfer, store and retain this knowledge amongst indigenous communities is greater now more than ever before.

Tacit Indigenous Knowledge In contrast to explicit knowledge, tacit knowledge refers to the “practical, action-oriented knowledge or “know-how” based on practice, acquired by personal experience, seldom expressed openly. Tacit knowledge is often difficult to express openly with words because it encompasses carrying out something without having to think about,

like riding a bicycle for example. The very nature of tacit knowledge is that it is difficult to extract from the heads of individuals. It is very seldom found in books, manuals, databases or files as it is developed from mental models, values, beliefs, perceptions, insights, experiences and assumptions (Anand, Ward & Tatikonda 2010).

Tacit indigenous knowledge refers to the types of traditional knowledge that cannot be easily expressed or articulated to outsiders. Tacit IK is largely based on an individual's emotions, experiences, insights, observations and perceptions.

2.3.2 Characteristics and Relevance of indigenous knowledge

According to Chisenga, (2002), indigenous knowledge is generated within communities; it is location and culture specific, and has been transformed by local people and incorporated into their way of life. It is not systematically documented; adaptation, and experimentation, and it is oral and rural in nature. It is also based on experience; it is often tested over centuries; it is adapted to the local culture and environment, and it is expressed in local languages. It is not confined to tribal groups and rural people or the original inhabitants of an area but it is based on ideas, experiences, practices and information that have been generated either locally or elsewhere, and is tacit knowledge, and therefore not easily codified and it is the basis for decision making and survival strategies.

Indigenous knowledge has become valuable not only to those who depend on it in their daily lives, but to modern industry and agriculture as well(Mole, 2014).

Small scale resource farmers have good reasons for sticking with their local knowledge and farming practices , modern technology can only be successful and sustainable if indigenous knowledge is taken in to consideration (Adedipe et al., 2004).

Indigenous knowledge is an enabling component of development and indigenous people are aware of the relationship between culture and development. Policy makers, development planners and the public at large have become increasingly aware of the important role indigenous knowledge can play in the promotion of sustainable development. They view indigenous knowledge as having the potential to help save lives and increase food security and income.

2.3.3 Indigenous knowledge transfer mechanism

Indigenous communities preserve and transmit knowledge using techniques like oral storytelling and experiential instruction. According to Anyira et al., (2010), the channels for

communicating indigenous knowledge have become inaccessible to the indigenous people themselves, especially young people , because of the modern dependence on the written word and loss of facility with indigenous language. Indigenous communities face a threat to the survival of their language and culture , besides information centers like libraries, also have not traditionally focused on the areas, they can help indigenous communities manage and preserve indigenous knowledge, by providing resources and expertise in collection , organization , storage and retrieval (Anyira et al., 2010).

Craftsmen and women who have unique skills and capabilities are primary functions having impact on the creation of competitive advantage through the development of handmade artefacts. So their knowledge should be managed effectively and efficiently which could be the critical resource that should be transferred among employees and to the new generations (Manfredi Latilla et al., 2019). According to (Darr & Kurtzberg, 2000) knowledge transfer is stated as an event through which an entity learns from the experience of another, that the effect of one unit on another is in terms of learning that the second unit experiences. Moreover (Foss & Pedersen, 2002)stated that knowledge transfer is not a replica of knowledge to the new location rather it undergoes some modification of the existing knowledge to a different context. Having all said about knowledge transfer it is also stated as processes of exchange of explicit or tacit knowledge between two agents, whereby one agent purposefully receives and uses the knowledge provided by the other (Kumar & Ganesh, 2009).

2.3.4. Preservation of indigenous knowledge

Preservation of indigenous knowledge can be achieved through traditional and modern methods. Preservation prevents the loss of indigenous knowledge and makes it less susceptible to any form of threat. In addition to this indigenous knowledge preservation helps in revitalizing endangered cultures, improving economic independence, sustainability of indigenous communities, and community-based involvement in planning and development (Hunter, 2005). According to Zimu-Biyela, (2016) to oral traditions, folklore, and apprenticeship as traditional methods of knowledge preservation while coding, documentation ,and digitalization are contemporary approaches to knowledge preservation.

2.3.5. Protection of indigenous knowledge from possible exploitation

Despite legal efforts to protect indigenous knowledge, there is still no “international consensus” that fully guards against the exploitation of indigenous knowledge (Sraku-Lartey

et al., 2017). The United Nations Education Scientific and Cultural Organization (UNESCO) has also set up diverse tools such as the Convention on the Protection and Promotion of the Diversity of Cultural Expressions, the UNESCO Universal Declaration on Cultural Diversity, and the Recommendation on the Safeguarding of Traditional Culture and Folklore (Natea, 2018).

2.4. Indigenous craft knowledge

IK is an innate knowledge of the people in a given community that is unique, generated, and transmitted by them over time, in an effort to cope with the environment (Nduka & Oyelude, 2019). According to Schon, (1983) traditional craft skills have been developed through practice. The apprentice has often learned such artesian skills by carrying out practices under instruction from master craft men. Moreover, the majority of such skills have been transmitted through demonstration of practice through master apprentices (Bradley, 2009).

In order to maintain and transmit traditional craft knowledge to the next generation, knowledge management systems could be used. However, there are challenges regarding passing the traditional into digital means. Some of the challenges are the following.

- Craft men are proud of their own skills and knowledge often hesitate to share and externalize their mastery with others (Riege, 2016).
- According to Shanon (1983) cited by ("Designing Knowledge Management System for Traditional Craft Practitioners," Mika yasuoka ,2020), Craftsmen often think that it is difficult to document such tacit expert knowledge as " we know more than we can tell based on (Polanyi and Amartya, 2009) cited by ("Designing Knowledge Management System for Traditional Craft Practitioners," Mika yasuoka , 2020).

Indigenous craft knowledge is so wide and includes fashion design and garment construction. Zero waste fashion design is such an approach that eliminates fabric waste in garment construction processes. Contemporary methods in garment construction start from the pattern making not from the fabric making processes as in old days; the zero waste fashion design is challenging for both designers and pattern makers, and final goal for zero waste fashion design is to create garments with patterns which fit together without creating any fabric waste (Senanayake & Hettiarachchige, 2020)..

One of the craft techniques accomplished in Ethiopia particularly in Harar is coiled basketry bowls, plates, and lidded containers which have traditionally been a part of the ceremonial

and everyday life activities of the Hara ethnic group. The coiled baskets were hung on the walls of Harari homes and have traditionally held an elevated status in the material culture of the group, and a dowry basket accomplished at Harari is brought during their marriage (Asante, 2005). The baskets which are accomplished in Harari generally are categorized into two groups: utilitarian baskets of frequent use and decorative or ceremonial.

Some of the Harai dowry basket primarily used as bride and some of which are hamat mot (a present from a bride to her mother-in-law, which may be used to cover food at ceremonies); and bishamudai (used to send chewing gum to the house of a wedding ceremony)

One of the indigenous craft knowledge that exists in Ethiopia is pottery. Pottery making is a long-standing occupational identity in rural Ethiopia (Wayessa, 2020). As it is cited on this (Wayessa, 2020) potters were considered a socially inferior and endogamous group, and intermarriage between potters and other rural groups and social categories like farmers violates socially acceptable norms. Because it is thought that potters must create relationships regarding marriage with other potters. As it is indicated from this paper, relationships are created in the same group due to this reason due to this reason pottery learning networks tend to be bounded by ethnic identity, with girls learning pottery making from their mothers or immediate kin (Lyons, 2014; Wayessa, 2011) cited by (Wayessa, 2020).

Technological traditions associated with pottery are in decline. It resulted from a reduction in demand for pottery products, which is mostly due to the large-scale introduction of enamel and plastic objects that are replacing traditional pots (Wayessa, 2020).

Pottery making has suffered a rapid decline in recent years due to a combination of social, economic, and political factors, and this decline has affected the social and economic livelihood of potters. As well as losing the income that provided them with economic freedom, the potters are also losing the opportunity to travel to market centers and to meet other people, an additional factor that is putting the continuity of the industry at risk (Wayessa, 2020).

However, not all occupations offer socially equal identities. In the south eastern highlands, potters are a socially inferior and endogamous group. Intermarriage between potters and other social categories, including farmers, violates socially acceptable norms, and marriage between potters from different ethnic backgrounds is also uncommon, as is intermarriage among farmers of different ethnic groups in the south western highlands. Daughters are taught pottery making through hands-on instruction, proverbs, and storytelling. The hands-on

instruction of young potters occurs at all stages of production, including collecting firewood for firing pots, going to the mining sites with their mothers, participating in clay preparation and moulding simple pots. Pots also represent active intermediaries in human-to-human and human-to-deity interactions and rituals; they are symbolically analogous to stages of human life (Wayessa, 2020).

2.5 knowledge management in the craft

Knowledge management and transfer in arts and crafts organization are demonstrated as, knowledge indeed, is a primary asset in the modern economy, specifically when it refers to the creative industry, where it is mainly the result of individual inspirations, abilities, and talents, able to create wealth and employment through the generation and exploitation of intellectual skills and craftsmanship abilities (Aytekin & Rızvanoğlu, 2019).

As it is cited in (Aytekin and Rizvanoglu, 2019), (Pulic,1998) has also strengthened the idea that knowledge management and transfer are crucial for the organization to efficiently and effectively locate capture, and share their knowledge and skills to maintain competitiveness.

According to Osterloh & Frey, (Osterloh & Frey, 2000), their ideas about knowledge, knowledge generation and knowledge transfer are the useful components for the organization to acquire or maintain a competitive advantage. So in order to maintain or keep a competitive advantage of the organization, managing organizational knowledge is one of the major components that should be given empathy to sustain the competitiveness of the organization. So managing organizational knowledge also involves developing new content or replacing existing content within the organization's tacit and explicit knowledge (Pentland, 1995).

Most knowledge in the organization is embedded in three basic elements: its members (employees), tools and tasks. So knowledge management is occurred through transfer by the movement of employees and tools (that is technology and industrial equipment) which is reflected on technology transfer. Moreover knowledge can also be transferred through tasks that could enable knowledge management particularly in craft organizations (Aytekin & Rızvanoğlu, 2019).

2.6 knowledge management framework

It is a holistic and concise description of concepts and principles. A knowledge management framework explains the major knowledge management elements, their relationships, and the principles of how the elements interact (Heisig, 2009). Knowledge handling is becoming common however is becoming more systematic towards organizational goals in order to achieve better results. So managing knowledge is possible through knowledge management frameworks in the form of activities or processes (Heisig, 2009).

Nowadays handling valuable knowledge resources is becoming challenging for organizations, due to isolated efforts to address knowledge management activities separately. Frameworks offer guidance in order to purposefully and systematically plan knowledge management efforts that could help to implement a holistic approach towards managing organizational knowledge (Heisig, 2009).

According to Pawlowski & Bick, (Pawlowski & Bick, 2012), frameworks could describe concepts, aspects such as processes or systems as well as relations of certain domains or problems to create better understanding or to support a specific purpose. Frameworks are used to understand the relationship between components and to structure and guide through a problem domain (Pawlowski & Bick, 2012).

Frameworks in the domain of knowledge management are used to describe, components, design aspects, or technical architecture and their interdependencies. It is also used to achieve a common understanding of the domain in addition to this it provides common terminology and frame of reference for organizations involved in knowledge management (Pawlowski & Bick, 2012).

It is known that knowledge management is managing organizational information and knowledge using different techniques by adding intelligence, skills, and experience. Different knowledge management initiatives, people, process, and technology is the key asset for the knowledge management framework. Knowledge management framework provides us or enables a holistic view (Meher & Mahajan, 2016).

Figure 3 : Knowledge management framework (Meher & Mahajan, 2016)

Business focus: Processes like strategy development, product/service innovation and development, manufacturing and service delivery, sales, and customer support have been played a great role in adding value to the organization.

Core knowledge activities: These activities are identifying, creating, storing, share and use of knowledge.

Enablers: Categories of knowledge capability: personal and organizational knowledge capabilities. Personal capabilities include ambition, skills, behaviour, experience, tools, time management which are developed at group level for the improvements of knowledge handling. Organizational knowledge capabilities are introduced by leader for effective knowledge handling within value added process by internal and external stake holders such as employees, clients, suppliers.

2.7 Types of knowledge management framework

According to Holsapple& Joshi, (2014), there are three types of KM frameworks. Those are prescriptive, descriptive, and hybrid of both

a. Prescriptive frameworks

Prescriptive frameworks only include set of KM activities where there focus is on KM cycle (Rubenstein-montano et al., 2001). Mainly these frameworks focus on providing directions on the types of KM procedures to be followed without providing specific details of how those procedures can or should be accomplished (Holsapple & Joshi, 2014).

According to Holsapple& Joshi, (2002), there is a need to characterize an organization's knowledge resources in a more comprehensive way. It is also very important to organize and consolidate knowledge manipulation activities by describing each activity clearly and identifying their interrelationships. In addition to this it is very important to identify the influencing factors in a comprehensive way. But prescriptive frameworks only focus on how knowledge flow in the organization without considering the factors that influence the flow (knowledge cycle) (Rubenstein-montano et al., 2001).

b. Descriptive frameworks

According to Holsapple & Joshi, (Holsapple & Joshi, 2014), descriptive frameworks attempt to characterize or describe the nature of KM phenomena. They identify attributes of KM important for their influence on the success or failure of KM initiatives (Rahman et al., 2012); (Tommy , 2007).

c. Hybrid frameworks

Hybrid frameworks combine the above two frameworks (Rahman et al., 2012). It provides a more comprehensive explanation and provides both directions on what KM elements KM programs should possess and describe those elements and key sub- elements (Tommy, 2007). Since these frameworks combine both prescriptive and descriptive character a hybrid frameworks will be more advantageous.

2.8. Related Works

Goge Africa: Preserving Indigenous Knowledge Innovatively through Mass Media Technology

IK serves as a basic input to sustainable development; however, many African nations have lost their cultural knowledge. In this paper primary data and secondary data were used, where Primary data was obtained through depth interviews and the secondary one is from relevant documents through an electronic search of databases. Content analysis was used and the findings were an innovative way of the outfit has tried to preserve its heritage materials moreover it is recommended that institutions should commence plans to promote the preservation of IK in order to enhance and sustain for the next generations(Nduka & Oyelude, 2019). However, the study does not point out the challenges and solutions of knowledge preservation and transfer of traditional cloth production. The paper does not show how knowledge is transferred. It does not also explicitly put the indigenous knowledge about traditional cloth-making know-how and skills to be preserved for future generations.
Hence, we are assessing and designing a new framework for the applicability of Indigenous knowledge preservation and transfer for Shiromeda target weavers.

Preservation of indigenous culture among indigenous migrants through social media: The Igorot peoples

The value and relevance of indigenous knowledge towards the sustainability of human societies drive for its preservation; moreover, social media has created a dynamic and attractive platform to transport the diverse cultural elements through various media forms. In addition to this pervasive technologies like smart devices have enabled to capture of knowledge in order to propagate and share through social media in the group and globally as well (Botangen et al., 2018).Even though the paper discussed and showed knowledge preservation and sharing techniques, it does not focus on traditional cloth production. The solution is too general so it does not show a specific traditional cloth production framework. Our study is concerned with traditional cloth production knowledge preservation and transformation at Shiromeda locations by reflecting ways of knowledge preservation for specific craft-making knowledge
s

The Use of Social Media Technologies to Create, Preserve, and Disseminate Indigenous Knowledge and Skills to Communities in East Africa

Preservation and sharing of indigenous craft knowledge are valuable for social and economic development, however, it is facing challenges being disappeared due to memory loss and passing on elders, however social media has created a dynamic and attractive platform to share the diverse cultural elements through various media forms, besides this survey method had been used to collect data and pervasive technology tools that could propagate throughout the globe had been used (Owiny & Maretzki, 2014). This work assumes that indigenous knowledge can be transferred by sharing it on social media. But, the probability of indigenous knowledge change is high in social media. In the other words, due to the born of many content management systems such as video editing, graph editing document editing tools, the indigenous knowledge can be edited negatively and shared on social media. For this reason, we propose sharing of knowledge between stakeholders, community, and knowledge holders (craft men) after the indigenous knowledge is validated. After validation, the IK can be shared in any means including social media and other communication technologies

Indigenous Knowledge Transfer Methods Of Shiromeda Weavers Community: Implications For Adult Education And Community Development

The study aimed to identify indigenous practices and the interaction (link) with adult education and community development to propose Indigenous Knowledge as a system and model to become sustainable through education. The study discussed capturing the weaving processes, intention, method, duration of the training, problem-solving strategies, challenges to transfer IK, and the outcome of learning to weave.

In addition, they followed a qualitative case study to design their proposed IK after collecting Secondary and primary data. Primary data were gathered through focus group discussions and in-depth interviews conducted with the Shiromeda weavers community in Addis Ababa. Key informant interviews were conducted with professionals. Secondary data were collected from relevant policy documents. The collected data were transcribed; analysed after categorizing them into themes. The major strengths of weavers' IK transfer methods are active and effective as opposed to the high cost of modern training or education.

The authors focused the ICK study in line with weavers' training from TVET and other educational institutions under the ministry of education. as it is implicated for Adult Education and Community Development.

The study was scoped only transfer of knowledge excluding knowledge creation and preservation tasks. To this end, we designed an ICKM framework that includes knowledge preservation and transferring tasks.

Donovan Maasz and et al (2018) conducted research entitled "A Digital Indigenous Knowledge Preservation Framework: The 7C Model—Repositioning IK Holders in the Digitization of IK". They developed a framework having 7C. The "7 C"s are co-designing technologies, creation of knowledge, conceptualization collection, correction, curation, and circulation. Having this process, the authors tried to preserve the digital indigenous knowledge. The paper focused on preserving the digital IK in general. It did not show a specific framework to keep the indigenous craft production. In addition to this, the authors did not show where the IK is preserved. So, there is a need to conduct research for the preservation of traditional cloth production and its circulation among the community and other stakeholders. Based on the Gap seen in the paper, we conducted a paper for specific indigenous craft knowledge preservation including the transfer of the IK to different stakeholders, weavers, experts, and researchers.

2.9. Summary

Table 1: summary of related work

Authors	Research Title	Purpose/objectives	Methodology	Key findings	Recommendation
Botangen et al., (2018)	Preservation of indigenous culture among indigenous migrants through social media	Exploring the role of social media in sustaining indigenous knowledge	An exploratory case study was employed=> Qualitative methods	Social media is a potential area in revitalizing indignity and sustaining indigenous knowledge	a social-media-based framework for preservation of indigenous knowledge
(Owiny & Maretzki, 2014).	The Use of Social Media Technologies to Create, Preserve, and Disseminate Indigenous Knowledge and Skills to Communities in East Africa	To proposes the use of social media and mobile technologies (cell phones) in the creation, preservation, and dissemination of indigenous knowledge and discusses the role of libraries in the integration of social media technologies with older media that employ audio and audiovisual equipment to reach wider audience on East Africa.	Qualitative methods	The preservation, management, and sharing of indigenous knowledge is crucial for social and economic development in rural Africa.	explored ways in which social media and other electronic technologies can be employed to give the children of Africa both wings to fly and roots to anchor them securely in the rich cultural landscapes of their homelands.

RahelZelalem , (1917)	Indigenous Knowledge Transfer Methods Of Shiromeda Weavers Community: Implications For Adult Education And Community Development	The overall objective of this study is to examine IK transfer methods of Shiromeda weavers community in Addis Ababa and its implication for adult training program and community development practices.	Qualitative methods	*IK combined with adult education, community development will be effective and fruitful*	For IK to be preserved and transmitted to the younger generation, it need be included in the education system.
Donovan Maasz et al (2018)	A Digital Indigenous Knowledge Preservation Framework: The 7C Model—Repositioning IK Holders in the Digitization of IK	To propose an integrative framework: the 7C model.	community-based codesign approach- mixed Qualitative and Quantitative approaches	*Digital way of Indigenous knowledge preservation was promising-* digitalizing indigenous knowledge *is enssenseal*	Implementation of the framework with the Ovahimba communities

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter deals with the research design methodologies, and tools used to conduct the research together with an explanation and justification why the methods, tools used here are selected to undergo and achieve the objective of the paper .

Within the investigated research, there are complementary but particular paradigms, behavioural science, and design science as is cited in(A. R. Hevner et al., 2004a). The behavioural science paradigm seeks to develop and justify theories that explain or predict organizational and human phenomena(A. R. Hevner et al., 2004a). The root for behavioural science paradigm is natural science and that of design science paradigm is from engineering.

The design science paradigm is a problem solving and seeks to create innovations that define ideas, practices technical capabilities, and products through which analysis, design, implementation, and use of the systems efficiently and effectively cited on (A. R. Hevner et al., 2004a) by (Denning 1997; Tsichritzis1998). As it is said by Nunamaker et al. (1992), the process of constructing and exercising innovative artefacts enable design science researchers to understand the problem addressed by the artefact and the feasibility of their approach to its solution(A. R. Hevner et al., 2004a).

In design science research there are core points namely as design process and design artefact. The design process is the sequence of expert activities that could produce an innovative artifact. During the production of the artefact, there exists an iterative process that could produce quality product being iteratively evaluated by creating loops so many numbers of times before the final design artefact is generated.

Having an articulated business require both design science and behavioral science research are indivisible since they have complementary. Ways of addressing their business need is distinctive since behavioral research is through advancement and justification of theories that clarify or anticipate phenomena related to the recognized business need. But design science

address through the building and assessment of artefacts planned to meet the identified business need (A. R. Hevner et al., 2004a).

Process iteration

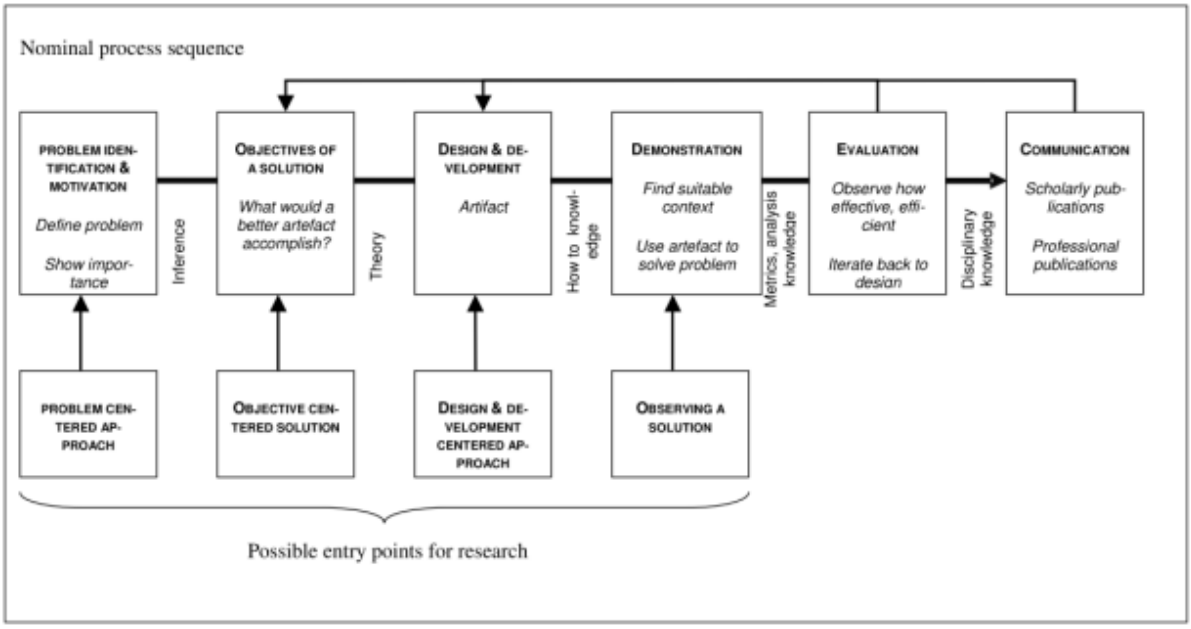

Figure 4 : Design science research methodology process model (Peffers et al., 2007)

3.2 Problem identification and motivation

This is the first stage in the design science research process as it is discussed in Peffers et al. (Peffers et al., 2007) design science research methodology process model. The problem is discussed previously under chapter one statement of the problem section. In this stage, the specific problems are identified and defined. Defining the value of a solution can also help the researcher be motivated and the audience to pursue the result of the research.

The main problem that is identified in the problem statement is producing products of the same style and the way knowledge is transferred from old practitioners to the youngest generation is through apprenticeship and knowledge is lost. So sharing indigenous craft knowledge with formal knowledge through a framework can preserve the old practitioner's knowledge and produce products in different styles simultaneously keeping the previous product.

Traditional cloth productions around Shiromeda do not have Knowledge management institution and formal written document that governs knowledge management practices in the

profession. Because of this, the craftsmen's activities will not be stored to be transferred for the next generation. Due to this reason experts' skills and knowledge passed with the individuals. This leads to indigenous knowledge being forgotten and not being transferred appropriately. Hence accessing previous craft activities became challenging for professions. So there is a need for the design of knowledge management frameworks for preservation and transfer to achieve a saving of indigenous knowledge of cloth production. Hence the researchers' motivation is to develop an artefact which is in this case a knowledge management framework.

To develop a knowledge management framework there is a need to identify the existing knowledge resources, assess the existing knowledge management practices in the selected professional area, and also the factors that influence the knowledge management practices. For this purpose data was collected from primary sources.

To achieve the objective of the study, the researcher follows mixed data collection instruments such as the Interview and Observation for Qualitative approach. Qualitative data collection methods such as interviews and observation are used because they provide results that are usually rich and detailed. The data collected using a questionnaire is collected and analysed using a quantitative approach to show statically results from interpretation.

3.2.1 Data Collection Instruments for problem identification

3.2.1.1 Research Method

The research method is a range of techniques used in research to gather data that are to be used as a basis for inference and interpretation under the methodology. It involves techniques concerned with data collection. We used a mixed research method with both quantitative and qualitative data collection methods. The reason why the mixed method is chosen is that the mixed method fills the weakness of both qualitative and quantitative methods and helps to draw the strength of both qualitative and quantitative methods.

The researchers gathered data from primary sources. The researchers used: Interview, Observation, Questionnaire and Review related literatures to collect relevant data for the research.

I. Interviews

The interview involves asking questions, listening to, and recording answers from an individual or group in a structured or semi-structured format in an in-depth manner. There are different types of interviews: structured, semi-structured, and unstructured interview. Among these interview types, the researcher used semi-structured interviews. Because the Semi-structured interview technique follows a framework in order to address key themes rather than specific questions. It also allows a certain degree of flexibility for the researcher at the time of the interview to add questions, modify wording or ask for clarification to get valuable responses in greater depth. For this research interview was conducted with the experts, trainers, Expert from Ministry of Culture and Tourism, Addis Ababa Culture and Tourism Bureau and federal small and medium enterprise.

The researchers used face-to-face interviews at the workplace with the selected study participants in order to get a better insight into the current KM practices (preservation and knowledge). The researcher used an interview guide by adopting form literature and made modifications and contextualized in order to meet the research questions.

The interview items were grouped into two broad categories knowledge preservation and transfer. Under each category, information is gathered from selected bodies. The interview guide is attached as Appendix in this paper. The researcher used a voice recorder to record the responses of the interviewee. The conducted interview took a maximum of 180 minutes and a minimum of 160 minutes.

For the interview part, the researcher classified the interviewee for preservation and transfer and for each of them again classified into senior and novice. Where senior is someone who works in the profession more than thirteen years of experience and is expected to have better knowledge as compared to a novice, whereas a novice is who works less than three years of experience.

II. Questionnaire

A questionnaire is a research instrument consisting of a series of questions for the purpose of gathering information from respondents. We called the questionnaire method to collect data to interpret the data quantitatively.

It is an effective means of measuring the behaviour, attitudes, preferences, opinions and, intentions of relatively large numbers of subjects more cheaply and quickly. Some of the preliminary decisions in questionnaires design are stated as follows.

- Decide the information required.
- Define the target respondents.
- Choose the method(s) of reaching your target respondents.
- Decide on question content.
- Develop the question wording.
- Put questions into a meaningful order and format.
- Check the length of the questionnaire.
- Pre-test the questionnaire.
- Develop the final survey form.

III. Observation

Observational research techniques have advantages over other qualitative data collection methods when the focus of research is on understanding actions, roles, and behaviour. We have used observation to explore aspects that practitioners or crafts find difficult to articulate (Walshe et al., 2012).

Observation is when the researcher takes field notes on the behaviour and activities of individuals at the research site (Creswell, 2014). The researcher gets close enough to study subjects to observe with or without participation usually to understand whether people do what they say they do. This study used non-participant observation; an observational instrument (observation checklist) was attached in this document as Appendix. In order to understand the Knowledge Management practices in the selected work area, the researcher observed how the experts practice knowledge preservation and transfer while they perform their tasks orally and in training. The observation was conducted by taking field notes.

Since qualitative data collection methods provide results that are usually rich and detailed which helps the researcher to get a better insight into the study area, semi-structured interviews, observation, and questionnaire data collection techniques were used.

3.2.2 Sampling Techniques for problem identification

Among non-probability (non- random) sampling techniques purposive sampling was selected for this study. Because according to Young &Hren (2017) "purposeful sampling determines key informants (individuals who have knowledge of or experience with phenomenon of interest). Moreover Purposive sampling is one of the most common sampling strategies, group's participants according to preselected criteria relevant to a particular research question (Family Health International, 2005). Though in order to have depth understanding on the study area the researcher selects participants that are familiar and has experience on the study area. It is where the researcher includes cases or participants in the sample because they believe that they warrant inclusion (Taherdoost, 2016).

3.3 Defining Objective of a solution

At this phase inferring the objective of a solution from the problem definition and knowledge of what is possible and feasible. The objective could be qualitative, indicating that how new artefacts are expected to support solutions to problems. Moreover, the objective could also be quantitative indicating that desirable solutions. The framework is developed to preserve and transfer indigenous craft knowledge for the Shiromeda cloth production community. The proposed framework could enhance craft experiences preservation and transfer knowledge of old practitioners including weavers that could be lost. The older African generation is conversant with indigenous knowledge, while the new generation rarely pay attention to such knowledge(Nduka & Oyelude, 2019).

3.4 Design and development

In the design and development phase, the artefact is created, wherein the context of this research the artefact created is a framework that could preserve and transfer indigenous craft knowledge. A design research artefact can be any designed object in which a research contribution is embedded in the design. Design a research artefact includes identifying requirements to produce the art facts including workflows, functions, objects and classes for

desired artefacts functionality and its architecture. Based on reviewing different related literature framework is developed for the sake of preserving indigenous craft knowledge particularly traditional cloth production and producing products in different styles by integrating with formal knowledge. We design the indigenous knowledge management framework model using object-oriented modelling approach. Object-oriented modelling can be accomplished using unified modelling language (UML). We choose OOP due to its capability of representing the artefact components using objects, class and functions and their interrelationships off the proposed framework artefact.

Underclass components which are stakeholders such as the ministry of culture and tourism, weavers association, Addis Ababa culture, and tourism bureau, Federal, Small, Medium, Manufacturing, Industry, Promotion, and Authority (FSMMIPA), and the community participate in the knowledge management framework. The functional component comprises the ICK preservation and transferring process and sub-processes in order to keep the how-to-make clothes and steps followed to produce the indigenous clothes when it is needed for the future.

3.5Demonstration

the demonstration is the application of the developed artefact to the problem domain. It is typically performed based on information that has been collected (Peffers et al., 2007). For this study, the importance of the artefact to solve the problem is demonstrated in the team and individual discussion. After the development of the knowledge management framework for the preservation and transfer, the model has been finished, the researcher initially demonstrates the artefact as a model in a traditional cloth production organization environment as a practical case study. We have to select 6 participants with different experiences in this profession to evaluate the applicability of the framework that could take place in the evaluation stage.

3.6 Evaluation

At this stage the proposed knowledge management framework is observed and measured how well it supports a solution to the problem. Evaluation helps to prove how the proposed knowledge management framework is effective and efficient to solve the mentioned problems. The framework is evaluated by experts in this field. It was evaluated by adopting evaluation criteria which was developed by (A. Hevner, 2004). The evaluation criteria of

artefact is using its usefulness, utility, applicability and completeness are considered to evaluate the framework (Prat et al., 2014) Seblewongel Mamo,2019). The proposed knowledge management framework was evaluated using some of these artefact evaluation criteria that are goal and environment. Since the objective of the solution is to improve indigenous knowledge management practices in the profession the framework is evaluated against its goal whether it meets for what it meant to do. And in order to improve the existing indigenous knowledge management practices checking against its environment is important. That means evaluating against its framework easiness, Usefulness, utility and applicability of the people, organization and technology.

3.7 Communication

The final stage of DSR is communications that allow to prepare reports based on the result of the study in order to describe the problem and its importance, the artefact, its utility and novelty, the rigor of its design, and its effectiveness and publish to make it reachable by researchers and other relevant audiences (Peffers et al., 2007). For this study, communication is being done through this thesis as a form of thesis report.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1. Identification

In this chapter, data obtained from various sources are presented, analysed, and discussed based on the specific objectives. The chapter also focused specifically on ways that were followed to answer research questions. Before presentation and analysis, it could be important to describe the processes of data collection. As indicated in the methodology part questionnaire, semi-structured interviews and observation are conducted.

For the sake of fulfilling design requirements, data should be collected from selected respondents through semi structured interviews and questionnaires, 30 respondents were used for the questionnaire which is from the ministry of culture, Addis Ababa culture, tourism bureau, and Federal, Small, Medium, Manufacturing, Industry, Promotion, and Authority. Besides, 26 respondents have been selected from crafts that are producing traditional cloth in Shiromeda.

Firstly, a semi-structured interview was used to gather data from indigenous craft knowledge particularly traditional cloth production found in shiromeda. The researcher prepared semi-structured interview questions listed according to the objectives of the study. The questions asked were aimed at addressing the research questions of the study. All the interviews were done at the participant's working place which is delivered by the government in an association that each of the classes contains about 25 workers. All interviews were conducted in the Amharic language. Before the actual interviews, the researcher explained to all participants the purpose of the study. The participants were informed that participation was voluntary and that they had a right to discontinue or stop the engagement at any point they feel uncomfortable during the interview. The participants were further ensured that they will remain anonymous and that confidentiality will be kept at all times. None of the indigenous knowledge holders was quoted or identified with any of the responses.

Semi-structured interviews were prepared into two categories by saying like preservation for knowledge holders by merging master indigenous craft knowledge holder and novice craft (apprentices), and by merging master indigenous craft knowledge holder and novice craft (apprentices) for transfer and finally giving in to two general categorizations as knowledge holder for preservation and transfer as well.

4.1.1 Data presentation and analysis using Interview method

4.1.1.1 Preservation

4.1.1.1.1 Knowledge holders

Three master indigenous craft knowledge holders were interviewed particularly the way how they preserve their knowledge for traditional cloth production .one of the respondent stated that

> "*The income generated through it is not enough for us to manage our family due to this case we are not motivated for its preservation. We are working with our effort that the government itself does not support us*".

Another respondent added also that:

> "We indigenous knowledge holders are undermined by the people living around us as a result our children who are supposed to take over our tasks become ignorant to it."

It is also added that training is given to us by the expert who is coming from federal small and medium manufacturing industry promotion authority but the problem is "the trainer is out of skill with regard to traditional cloth production."

No Information technology tools used to preserve indigenous knowledge were identified to determine if information technology is in fact being used for this purpose.

As we know Indigenous knowledge, which has generally been passed from generation to generation by word of mouth, is in danger of being lost unless it is formally documented and preserved, but they stated that

> "*The situation now is very difficult in order to formally and informally documenting and preserving it is not still practical because of the absence of common platform or tools prepared in order to keep them for the next generation. Even our children are now challenged to get knowledge about it due to dynamic change of the design in the short period of time and becoming too difficult to transfer to them.*"

The respondents also added that there is no,

> "*as such incredible opportunity with the current situation but from previous years ago the government had organized us and gave us working place that could be considered as an opportunity but now even we have asked the respective bodies to adjust borrowed service that to enhance our productivity and solve the problem of resource limitation. So they state that government should adjust borrowing services, expand working areas, adjust training who are capable in that particular knowledge area, and even should construct schools and include it in the curriculum will result in foster growth that plays a crucial role in the sustainable development of the society."*

In general, they stated that "there is no formal way of preserving it and there are no tools that we use to preserve it rather we become hopeless that even we are searching other means of living than keeping with this and even our children who are supposed to be successors of us are not motivated to learn from us ."

For its continuation for the better future it is revealed by indigenous knowledge holder that: the responsible organization like Ministry of culture and tourism, Addis Ababa culture and tourism bureau and Federal Small and Medium Manufacturing Industry Promotion Authority which study is conducted should prepare and provided:

- Training area
- Production area
- And trainer itself who are very equipped
- Manual
- Resource for practicing

For the convenience of the study apprentices were also selected through purposive method that is found in shiromeda that are playing a great role for preserving and transferring of indigenous craft knowledge for the next generation.

The respondent stated,

> "*That knowledge could be gained, through learning from others mostly employed by observations, practically doing things, imitations, following orders from ancestors, and constantly following their masters. The trainee also added that there is no fixed time allotted to finish the training, there are factors that should be considered like*

individual interest, how fast they can learn, and if they have all the resources required to complete training."

Indigenous craft knowledge particularly cloth production its nature is generally known to have been passed on from generation to generation through oral tradition, by selecting one of the family members and keeping them under their wing, sharing all their experiences to ensure that their knowledge is carried over to the next generations.

But the respondents stated that "urgent measures are required to preserve oral knowledge as it faces a greater risk of loss and misappropriation."

One of the respondents stated that "I get this task from his family since it was a means of livelihood that the family becomes unable to continue due to the problem faced on the family and I take over it without an interest."

As a trainee they have faced many problems stated as:

- Wastage of resources
- The trainer being unsatisfied with what we are doing
- Did not undergo the practice with full freedom being afraid that the resource will be wasted.

4.1.1.2 Knowledge transfer

4.1.1.2.1Knowledge Holders

One of the respondents gets his knowledge "from family through observation sitting aside for a long time and asking each process and checking every component how it is produced and trying to do the same and ask them what each step is used for, moreover, anyone can learn different types of cloth production since the basics is the same and practice makes perfect."

Respondents also added that the methods employed to transfer knowledge among indigenous knowledge holders were " taking sample from one of the products produced by the colleague and then doing by observing the sample, when a technical problem occurs the issues were raised and present for the one who has better know-how and solved accordingly by this way trying to share what they have in between them."

But the main problem during knowledge transfer is still with traditional way that the training normally takes place through working alongside a skilled worker, observing his or her work,

and gradually taking over the job moreover the workers get their skills and improve themselves through engagement in daily work processes and interaction with more experienced workers. But the task of knowledge transfer had been taking place through strategy and policy that should include the creation of long-term jobs through skills-upgrading programs, and strengthening the use of appropriate modern technologies were some of the things that should be considered in order to facilitate knowledge transfer.

Mostly this kind of task is done by the urban poor who were migrated a few years ago from rural areas allowing themselves to take part in paid employment activities, to expand their alternatives for supporting their families, and to contribute to national economic development leads to reduce unemployment for the current huge labor force in the context of our country.

When the respondents ask during the interviewee, how you transfer skills or knowledge to your kids the respondent noted that;

> "t*he has no more interest to share to his kids because of design flexibility is becoming one of the challenges for them to grasp and working accordingly besides this decreasing interest in teaching their own kids the skill of weaving. The indigenous knowledge holder added that they want their son to continue their formal education and start working in professions. Another means of losing interest in weaving for their children to follow is an insufficiently profitable line of work. They complained that too high proportion of the price is paid for shop owners*."

One of the respondents also added that when asked do they believe you have special skills which are not retained by any other employee/ craftsman. No, but the non-codified, informal, tacit knowledge that the indigenous craft knowledge gain through experience by which the indigenous craft knowledge gain through experience was seen as the most valuable asset, and the product produced through experience have shown a significant change as compared to the product produced by the one who has less experience. My skills have shown significant improvement over the years, when he was a young indigenous knowledge holder, the netelas made by him were very coarse and it was even difficult for him even to sell but now he said he can easily sell his products like Gabis since due to long experience and the customers admire the quality of the fabrics he made and the attractiveness of the patterns.

With regard to knowledge transfer particularly indigenous craft knowledge in Shiromeda who are producing traditional cloth, production was asked some interview questions that "as their

base for selecting such task and being attracted in such work as well as their family. Additionally, at the time of that where they live in rural areas, we thought that the task was very interesting for them because there was no other option that we observe better than that, as a result of this we were following what our family is doing day to day, observing what they did attentively, helping them in producing the product, by doing that we become so master indigenous craft knowledge holder, even they said their family was not allowed them to play with their peers being afraid that they could lose what they know through time. Moreover during producing the product as a result of observing long period being set aside those for a long period through there was an occurrence of fault during helping them and punishment was arranged for us not to do mistakes again and again."

> *In general knowledge, transfers were with a serious of hardship that we achieve today in such way but this generation would not have the interest to gain knowledge in such manner. So we cannot say this time is enough to accomplish the task or not enough to accomplish the task because of the existence of different factors that might shorten or elongate the amount of time required to finish the training especially internal interest and commitment were the main factors.*

As the researcher have observed from the field setting the traditional cloth production environment is located around shiromeda where about 25 users are working together in each of the classes sitting side to side and there is no free space to move freely within it as a result of lack of space workers do not have extra resources except what they are doing at the moment. But researcher asked them why don't have extra resources they said that we do not have enough space to put it and neatly as well. With regard to infrastructure, there is no technology observed for preserving and transferring indigenous knowledge except for their own cell phone.

As the researcher have further observed the means of sharing their experience among themselves is through observation by sitting beside senior craft and watching attentively what he /she has doing and trying to practice by their own, so this kind of sharing knowledge is not well organized and demands modern technology so as to increase preserving and transferring and ease of use of indigenous knowledge for the next young generation.

In conclusion, there are different threads that have been used to produce different kinds of traditional cloth with a different color that could increase their interest to buy it that would be dressed during the ceremony that describes us Ethiopian are unique in dressing styles.

4.1.2 Data presentation and analysis using questionnaire method

Hereunder table 2 presents respondents reply concerning preservation and transfer of indigenous knowledge related to infrastructure.

Table 2: Preservation and transfer of indigenous knowledge related to infrastructure.

Items	Strongly agree		Agree		Not sure		Disagree		Strongly disagree	
	%	frequency	%	frequency	%	frequency	%	frequency	%	Frequenc y
The concerned organization utilizes ICT to support knowledge sharing and preservation among the experts	0	0	0	0	10	3	33.3	10	63.3	19
The concerned organization has databases to store activities, procedures and other traditional indigenous knowledge	0	0	0	0	3.3	1	33.3	10	33.9	19
The traditional cloth production training school is available	0	0	0	0	13.3	4	26.7	8	60	18

Source: field survey, 2021

According to the respondents, the results show that 63.3%, 33.3% ,10% , 0% ,0% are strongly disagree, disagree, not sure and agree and strongly agree respectively this shows that the concerned organizations are not in a better position to utilizes ICT in order to share and preserve indigenous knowledge. Moreover with regard to databases that helps to store procedures and indigenous knowledge is also indicated as 33.9%, 33.3%, 3.3%, 0%, 0% are strongly disagree, disagree , not sure , agree and strongly agree respectively. In

addition to the above the availability of training school with regard to traditional cloth production is also responded in such a way that 60% were strongly disagree, 26.7 % were disagree, 13.3 % were not sure and the remaining two were zero percent each. This indicates that the responsible organization which is selected for data collection with respect to indigenous craft knowledge particularly traditional cloth production is not well organized in such a way that there is no infrastructure that allows for preservation and transfer of the regarded knowledge.

In general, all the three items mentioned above which are highly focused on technology and infrastructure in order to preserve and transfer indigenous craft knowledge particularly traditional cloth production has not to get emphasis by all responsible bodies whether government or other bodies as expected even if it becomes a back bone or means of livelihood for some part of the society.

Also a discussion made to explore formal methods used for preserving and sharing indigenous knowledge. The survey result is presented in table 3 below.

Table 3: Assessing *formal methods for preserving and sharing indigenous knowledge*

Items	**Strongly agree**		**Agree**		**Not sure**		**Disagree**		**Strongly disagree**	
	%	frequency	%	frequency	%	frequency	%	frequency	%	Frequenc y
There are formal methods for Preserving and sharing Indigenous knowledge					16.7	5	20	6	63.3	19
No system and procedures that support knowledge sharing	50	15	46.7	14			3.3	1		
Lack of awareness regarding Indigenous knowledge transfer and Preservation in the profession areas	23.3	7	26.7	8	10	3	40	12		

Source: field survey, 2021

Here is also the respondent's result with regard to formal methods for preserving and sharing indigenous knowledge is indicated as 63.3 % strongly disagreed, 20 % disagreed, 16.7 % not sure, and the remaining two were zero percent each. With regard to no system and procedures that support knowledge sharing is also indicated as 50% strongly agreed, 46.7 % agreed, 3.3 % disagreed and the remaining two indicate zero percent each. In addition to this results of the respondent with regard to awareness in transferring and preserving indigenous knowledge among professionals is presented as 23.3 % strongly agree, 26.7 % agree, 10 % not sure, 40 % disagree, this output or result indicates that there are professional who is aware of transferring and preserving indigenous knowledge among professionals but the main problem is making it practical.

Further assessment was made to explore the working environment for preserving and transferring indigenous knowledge, as presented below in table 4.

Table 4: Working environment for preserving and transferring indigenous knowledge

Items	**Strongly agree**		**Agree**		**Not sure**		**Disagree**		**Strongly disagree**	
	%	frequency	%	frequency	%	frequency	%	frequency	%	Frequenc y
Traditional cloth production environment is good			30	9	13.3	4	56.7	17		
There is favourable environment for craftsmen to promote teamwork			10	3	13.3	4	76.7	23		
The physical work environment is encouraging for knowledge sharing.			30	9	13.4	3	53.3	16	3.3	1

Source: field survey, 2021

Here the respondents with regard to the working environment particularly the traditional cloth production environment are good are presented as 56.7 % disagreed,30 % agreed, 13.3 % were not sure moreover with regard to the environment for craftsmen to promote teamwork were also presented as 76.7 % disagreed, 10 % agreed, 13.3% were not sure and the last that

is indicated as the physical work environment is encouraging for knowledge sharing is also stated as 53.3 % disagreed that indicate in general with regard to working environment is not well managed and organized for the ease of knowledge transfer and preservation.

4.1.3. Data Analysis obtained using interview and Questionnaire

Within the Data Analysis process, the conceptual framework surrounded the understanding of the current IKM of traditional cloth production circumstances in Shiromeda area practices which made a difference to identify the imperative factors to focus on, besides the factors from different looked into KM models. The data at that point was organized and decreased into subjects through coding, by proceeding to interpret the displayed data comparing with the different related thoughts. In this part analysis of the data collected will be provided to better design the proposed framework.

As it is stated in chapter 1(section 1.3), the main research questions of this study are:

- How the proposed indigenous craft knowledge frameworks preserve the traditional cloth production at Shiromeda?
- How the proposed indigenous craft knowledge framework transfers the traditional cloth production knowledge?
- How ICK framework can be best applied for the preservation and transfer of craft indigenous knowledge to future weavers in adult education program?

This chapter helps to answer the research question of the study. Moreover, the data were collected through observation, semi-structured interviews and questionnaires as well. In the interview section, the participants were classified into two broad categories for preservation and transfer of indigenous knowledge, and each of the categories is again classified into two as novice/apprentice and master/senior. In order to simplify analysis senior or master and novice /apprentice for each of preservation and transfer is merged.

The result obtained from the interview indicates that there is no indigenous knowledge of traditional cloth production is preserved for the next generation, moreover, the trainee who is being trained by master craft men are not keeping what they learn from them this is due to the fact that there is no tool for preserving it as well as they don’t have knowledge or skill to preserve it. In addition to this stake holders or responsible government bodies like the Ministry of culture and tourism, Addis Ababa culture and tourism bur and federal small,

medium, manufacturing industry promotion authority is only adjusting programs in order to promote and sell their product in the community through Bazar and exhibition.

For the interview section particularly for the part of indigenous craft knowledge of traditional cloth production, the participants have adjusted in a way that master for transfer was 8 and novice for transfer was 5. The trainee mostly gets trained from family and it is transferred through word of mouth where there is now well-done infrastructure that helps to transfer to the novice.

With regard to the questionnaire, three government companies were invited specifically related departments were considered. The main part of the questionnaire that leads to proposing a knowledge management framework was:

- The concerned organization has databases to store activities, procedures and other traditional cloth materials.
- The concerned organization utilizes ICT to support knowledge sharing and preservation among the experts.
- The traditional cloth production training school is available.
- No system and procedures that support knowledge sharing.

So out of the 30 respondents with regard to "The concerned organization has databases to store activities, procedures and other traditional cloth materials" 19 (63.3%) were strongly disagree that shows there is no database for the concerned organization so as to preserve and transfer indigenous knowledge . Moreover having on the same respondent 30 with regard to "the concerned organization utilizes ICT to support knowledge sharing and preservation among the experts" shows the same result that is 19 respondents were replied by saying strongly dis agree , this also indicates that utilization of ICT is not motivating for preserving and transferring indigenous craft knowledge.

With regard to "the traditional cloth production training school is available" here 18 respondents were saying strongly disagree and with regard to "no system and procedures that support knowledge sharing" 15 (50%) respondents were strongly agree indicating that there is no infrastructure or tool that could preserve and transfer indigenous knowledge of traditional cloth production. In general,the result of the analysis demands artefacts or tools for preservation. So by triangulating qualitative data with quantitative data we can come up with better output that shows the need to develop an artefact, in this case developing a knowledge

management framework that can preserve and transfer indigenous knowledge of traditional cloth.

To sum up, the result of interview and questionnaires based data showed us that the application of o Information technology tools is poor to preserve and transfer indigenous knowledge. Ignoring this IT enabler makes ICK difficult in order to formally and informally document and preserve and transfer it.

Still Indigenous knowledge is learnt among weavers by observations by practically doing things, imitations, following orders from ancestors, and constantly following their masters. Even setting training schedule has not fixed time so as to finish the indigenous knowledge training. The data collected using interview showed that both Public and private organization are not in a better position to utilizes ICT in order to share and preserve indigenous knowledge (Rahel, 2017).

Here the proposed framework will be developed after collecting and analysing data through questionnaires and semi-structured interviews by categorizing indigenous knowledge holders for preservation and transfer, and through questionnaire method for experts for the preservation and transfer of indigenous craft knowledge in three selected government organizations for the sake of collecting and analysing the data.

So the newly proposed framework will be developed based on the data analysis and presentation. In general data analysis and presentation is the foundation for designing the framework that supports for preservation and transfer of indigenous craft knowledge.

Moreover identifying existing knowledge resources is important to give special attention to which knowledge needs to be managed through the developed framework. In addition to identifying existing knowledge resources like techniques, production processes manuals and sample clothes, statistical analysis tools like SPSS version 24 had been used moreover to design indigenous knowledge management framework model to support preservation and transfer using an object-oriented modelling approach. Object-oriented modelling can be accomplished using unified modelling language (UML). We choose OOP due to its capability of representing the artefact components using objects, class and functions and their interrelationships of the proposed framework artefact.

CHAPTER FIVE

FRAMEWORK DESIGN AND EVALUATION

5.1. Overview

This chapter describes the cycle of the design science approach where the relevance cycle and the rigor cycle meet. Within the relevance cycle the issue or the need for the research, the inquire about environment or setting, and plan necessities are examined. The rigor cycle (chapter two) uses existing information bases such as theories, methods, and design items to supply a basis for thorough design research. In this process review of literature on information, knowledge management, and already outlined KMFs is attempted with the point to distinguish commonalities and inadequacies within the accessible KMFs. Primary data is accumulated through questionnaires, interviews, and observation data collection techniques to set up organizational setting and Information Management prerequisites for this study. In this chapter, these efforts are combined to design a comprehensive KMF which is appropriate for the traditional cloth production of indigenous knowledge of the Shiromeda area.

5.2. Proposing a Framework

Indigenous knowledge management of traditional cloth production needs it possesses prerequisites to construct a framework for its processes. The KM frameworks that have been looked into within the previous chapter cannot be utilized for the traditional cloth production indigenous knowledge as they are. Since most of them are not comprehensive and don't consider the traditional cloth production of indigenous knowledge prerequisites. In this manner, a KMF has to be compelled to be created on the basis of those available frameworks for the indigenous knowledge management particular prerequisites that have been distinguished in chapter four.

The main objective of the created framework is to enhance the sector organization's central areas for thought in KM endeavors and offer assistance to the organization in making mindfulness concerning traditional cloth production of indigenous knowledge. The Framework helps individuals to understand what KM is, what knowledge exercises are included and how the knowledge activities are involved, and how the knowledge activities affect organizational effectiveness. It too encourages communication and is greatly

valuable to have a common, and serves as a blueprint for the detailing KM approaches and procedures. Because it has been specified by (Metaxiotis et al., 2005)a KM framework ought to incorporate and clarify the major KM components, their relationships, and the principles that characterize the way in which these components interact. Due to the broadness of KM field and the need of KM benchmarks, existing KMFs change in scope and center. The review of the related writing on chapter two appears that in most comprehensive KMFs at slightest three major components are common. These are the knowledge assets that an organization has, fundamental types of exercises or forms that can be utilized to control these organizational information assets, and classes of impacts that shape the conduct of KM in an organization. Subsequently, the proposed framework should contain at least these three primary recognizing perspectives or components of a KMF. Since the framework advancement takes after a design science approach, a few of the components of the framework are taken from existing frameworks and adjusted to fit into this study setting. Extra components that are particular to the traditional cloth production context are moreover included based on the prerequisites distinguished within the data analysis.

The Indigenous Knowledge Management Framework enhances to solve and improve on what has been seen within the interpretation of the displayed data and understanding the values and gaps within the existing knowledge sharing and preservation practices. The system has brought relevant issues into consideration and shapes the management of the Indigenous Knowledge within the traditional cloth production practice particularly in Addis Ababa, Gulele Sub-city around shiromeda with information communication technological support.

5.3. Components of the Proposed IKMF

The proposed framework has (knowledge resources, KM processes, and other components that are outlined in the framework figure and discussed below. Since this can be the primary framework created for the indigenous knowledge of traditional cloth production, much effort has been applied to form it as comprehensive, clear, and simple as possible. Based on the data analysis from chapter four, the following components are integrated into the framework and the components are discussed following the framework as it is seen in figure 5 below.

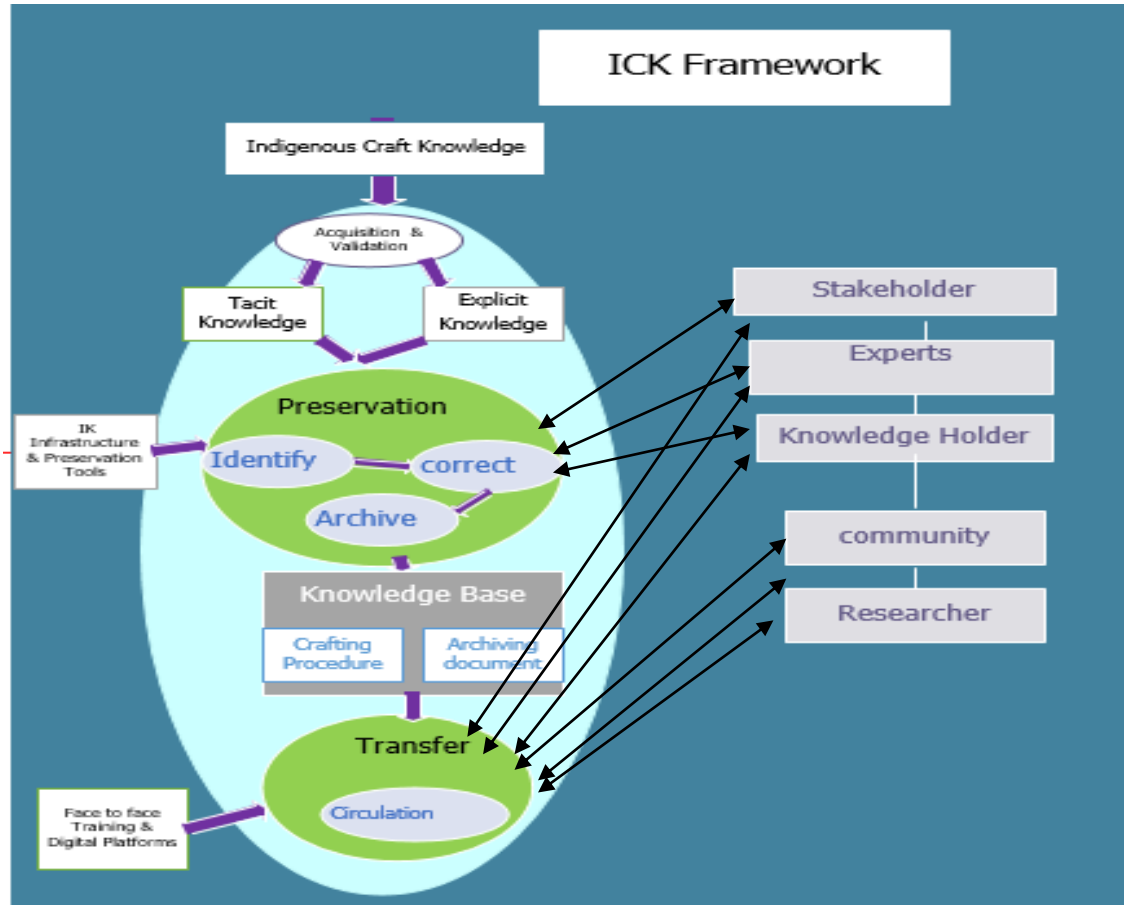

Figure 5: The Proposed Indigenous Knowledge Management Framework

In general, the objective of KM is bringing improved situational understanding among the decision-makers so that they can make good decisions. Descriptions of each framework's components are discussed as the following:

Indigenous Craft knowledge: Traditional cloth production indigenous knowledge are tools used to produce the materials, techniques they used throughout the process, best practices in traditional cloth production areas, colour arrangement of the threads, and meaning of each arrangement of colours.

Knowledge Acquisition (creation): Knowledge creation is the process of developing new knowledge or combining, restructuring or repurposing existing knowledge in response to identified knowledge gaps. In this process the craftsman design new cultural cloth style to fulfil the need of the user.

Validation: Validation is the process of checking that created new styles are fulfilling the cultural cloth criteria concerned the community values and customs. It is the process of ensuring whether the product fits requirements needed in specific nation's cultural cloth style.

Any of typical knowledge processing modes: insert new style, deletion of out-of-date elements, or updating its contents means validation of knowledge itself. Experts in this area are working with each cultural owner domain professionals to validate the created cultural cloth style and to create new cultural cloth style and integration of new practices. Because, knowledge validation procedures are very important in the whole management process, however important and methods of particular tasks are different for the specific knowledge management activities.

Preserve knowledge: preserving knowledge is the main objective of this study in which knowledge regarding traditional cloth production will be preserved. That indigenous knowledge will be collected and stored for the purpose of retrieval as a knowledge base. They can be preserved as a knowledge base containing the procedure of how the traditional clothes are processed and produced as a physical cloth and documents such as manuals, brochures can be documented in the knowledge-based. The sources of indigenous knowledge are knowledge holders (weavers), experts and community. The IK preservation has processes starting from IK collection, correcting and curating & archiving (Donovan Maasz2018)

Explicit and Tacit knowledge

After the validation of acquired knowledge, the knowledge is categorized and structured into two categories: Tacit and explicit.

Knowledge is knowledge hidden from the consciousness of the knower. Tacit knowledge resides in human brain and cannot be easily captured or codified. . It can be observed through action (Olomolaiye & Egbu, 2004).Hence, we acquired tacit knowledge from craftsmen's action data collection method.

Explicit knowledge can be articulated in formal language and easily transmitted amongst individuals. Explicit knowledge implies factual statements about such matters as material properties, technical information and tool characteristics. Thus explicit knowledge can be compressed into a few summary symbols that can be encoded by language in written words and/or machine. By its very nature, explicit knowledge is capable of being capture and widely distributed throughout the organisation (Olomolaiye & Egbu, 2004).For our indigenous knowledge management, we document IK procedures which discuss the knowhow of craft production at shiromeda. We also archived craft production manual, brochures, history of clothes as documentation.

- **Identifying and Collecting**

Identifying and collecting the traditional cloth production processes, way of making and their integration with the modern way of cloth production is the first task to preserve ICK. The knowledge could be explicit or tacit which is collected and recorded from IK holders through the functionalities provided in the technologies in addition to manual preservation. Considering the lifestyle of some indigenous communities such as weavers, their day-to-day activities entail much movement and physical works were collected in line with the cloth production goal.

- **Correction**

This stage in the IK preservation framework attains to the ability of the IK holder to use the collection tool to review and correct possibly incorrect records before the curation process is initiated. Due to the physical nature of the activities pertained to IK communities, the assumption being made is that the IK holder will collect information throughout the day and at a later stage revisit the collected information. During the revisiting process, he or she will be less active and have more cognitive freedom to process what was captured and identify what needs to be corrected. The correction process is a seemingly majestic task as all collected data needs to be validated by a local knowledgeable person to ensure that all information being released portrays the culture of the specific communities with the best of intentions as to prevent a negative perspective from being formulated by external viewers. The feasibility of this stage revolves around the implementation of the functionality in the IK holder toolkit that would enable the IK holder to "Edit" a recording (Video or Media) by "inserting" a new recording after or in the middle of a previous recording correcting the mistake or adding on to the discussion that was being recorded. This stage is not a very complex stage but is vital in the process of ensuring that the data collected is validated before any further processes especially dissemination to the outside world (Donovan Maasz 2018).

- **Curating and Archiving**

There are three possible scenarios namely database curation, Homestead Creator (HSC) curation, and technology curation. Database curation is deciding which elements of the data collected are necessary, which ones belong together, etc. In other words, it is grouping unstructured information in such a way that it forms a type of collective record on a certain topic such cloth category such as leather, cotton, linen etc. Therefore, the curation phase is

the stage where the collected knowledge is put into a contextual environment for the users to interact with and learn about the cultures (Donovan, 2018)(Donovan Maasz2018). After curating the collected traditional cloth IK, the knowledge is archived in the concerned sectors, knowledge holder, and experts for keeping this IK. Then, IK knowledge is supposed to be transferred to IK seekers.

Knowledge Base

After the IK preservation stage (identify, correct, and archive) knowledge, the knowledge is presented as a knowledge base. The knowledge base contains craft working procedures including the know-how and the archived documentation including manual, cloth brochures, and so on. The knowledge base is accessed by stakeholders, experts, knowledge holders, and researchers when it is needed.

Transfer: The stored information has to share with the community through digital knowledge management systems such as online IK systems, recorded systems with (CD, Flash) for easy access, and reuse the knowledge in order to transfer for the next generation. IK transfer is accomplished using the circulation process (Donovan Maasz, 2018).

The knowledge to be transferred includes Craftsmen knowhow such as Production Processes, Job phases and methodologies, Techniques, Manual skills, craft History and Traditions, Skills and abilities that belong to the organization heritage and traditions and Skills and abilities learned “on the field”

Activities that enable and facilitate the transfer includes Codified activities and Non-codified activities: Codified activities include Training school and courses inside the organization; and Training school and courses outside the organization whereas the Non-codified activities: Include Observations, Listening, Sharing experiences, Sharing knowledge, Working together, Building a relationship and so on. The knowledge base is made from such transferable knowledge and knowledge transfer enabling activities as demonstrated from the components of the framework in figure 5.

Circulation

The main reason for the initial amplification of research into the preservation of IK relates to the rise in rural–urban migration. More and more community members are diverting from their traditional lifestyles to attend schools and universities. This, therefore, increases the danger of their culture fading away because the knowledge holders are passing on and they have no one around to continue the legacy that was built over centuries. Thus, the importance

lies in reaching out to the youth and other audiences through different means and forms. This could be access to scientific databases, games, encyclopedias, etc. This will in turn ensure that that the knowledge transition is preserved for many generations to come. This stage, therefore, entails the actual contextualization of curated information into the circulation tools for dissemination to the intended focus groups. Currently, the main tools for the circulation of knowledge include some small-scale 3D telegram, etc., with further enhancement plans for Augmented Reality (AR) and Virtual reality (VR) (Donovan Maasz2018).

Experts/weavers: They are professionals working on traditional cloth production. They design the style of the threads and sew according to each cultural cloth style. The experts sometimes create a new style and that style has to be validated or evaluated among them whether it is meaningful and not against the cultural cloth colour arrangement. Because each colour arrangement has its own meaning among each culture of Ethiopia nations and nationalities

Community: Community includes experts/craftsmen and the people who use traditional cloth and trainers as a whole. The community are the owners of the traditional cloth and craftsmen and trainers are also the members of the community.

IK Infrastructures and Digital Platforms

The Framework is enabled using IK infrastructures such as server computers with good performance and storing capacity and network equipment for preservation sake. The framework becomes effective if we use a digital platform for knowledge transfer. It could be online platforms for training and sharing of intended IK. The framework can use Zoom, telegram and other communication means so as to share IK between new Craft men and other stakeholders when needed.

Knowledge conversion of the framework

The partners exchange knowledge with each other on social occasions. At that point, they would be able to externalize their knowledge to a central framework in order to others Internalize back from the framework which by implication makes an opportunity for the Internalizes to combine new knowledge and store it back to the framework. The framework is imagined to grasp the highlight to make internal knowledge from the local community and External Knowledge advanced from Internal knowledge; at that point, it is approved sometime recently it is stored since there are Internal knowledge which accepted to be completely valuable by the local people but the experts in some cases got to made

modification or consider it as noisy data; the modified Internal knowledge at that point have to be discussed with the Internal knowledge holder not to lose contextual data about the Internal knowledge. The approved internal knowledge at that point put away for sharing between the stakeholders; in spite of the fact that the internal knowledge approved must be protected. The information recipient is the one having data almost the environment and approximately the area where the shared Internal knowledge is anticipated to be connected and bring values Or the shared Internal knowledge can moreover be combined with other data inside the head of the Internal knowledge reader from the framework at that point come up with a new Indigenous Knowledge which once more might be approved for its culturally acceptable among society.

Up on externalizing Indigenous knowledge to the IKMS and Internalizing Indigenous knowledge from the IKMS creates an encouraged environment for individual partners to create their learning behavior and experience, clearing the way for collective learning to achieve across the country organizational learning to result in wide mental capital.

5.4. Demonstration of the Framework

This study is motivated to design and develop the indigenous knowledge management framework that will support indigenous knowledge preservation and transfer of Shiromeda cultural clothes production knowledge. The data was collected through questionnaires and interviews from responsible (mandated government organization and from indigenous knowledge holder itself located on Shiromeda). Then the collected data were analysed in a way it supports the development of the framework for this study. After that, the framework was evaluated by selecting employees from mandated government organizations and the knowledge holder itself. Depending on data analysis the developed framework could support cultural cloth process knowledge preservation and transfer indigenous craft knowledge. So it is proofed and conceptually logical that the developed artefact could support the preservation and transfer of craft knowledge as a guideline for the knowledge holders and mandated government organization employees.

The demonstration section describes how to use the proposed indigenous craft knowledge framework to facilitate preservation and transfer to the next generation, which indicates the

general objective of this research. The methods used to demonstrate how the proposed framework well functions for the sake of preservation and transferring for the next generation were through face -to -face communication and observation has been considered.

For this study, ten indigenous knowledge holders working in ShiroMeda areas and four experts from the ministry of culture and tourism were invited for the demonstration on the behalf of the ministry of culture and tourism experts who were responsible for managing knowledge holders by providing working area, and adjusting the program to promote their product by preparing Bazar and exhibition.

Before the demonstration, the session is launched the researcher has told about the objective of why they are coming to be here in order for them to observe and communicate about how the proposed knowledge management framework is supporting for preservation and transfer of indigenous craft knowledge.

The researcher had presented the proposed framework for the participant how it supports for preservation and transfer of indigenous knowledge. The knowledge is presented as a knowledge base. The knowledge base contains craft working procedures including the know-how and the archived documentation including manual, cloth brochures, and so on. The knowledge base is accessed by stakeholders, experts, knowledge holders, and researchers when it is needed. So the stored information in the knowledge base has to share with the community leading to the transfer of knowledge to the next generation through the framework and knowledge management systems, where the knowledge to be shared includes production processes including techniques and skills learned through building relationships between knowledge holders.

The comments given by the participant were showing a lack of motivation that could be a barrier for preservation and transfer of craft indigenous knowledge for the next generation. In addition to this, there are sample clothes that exist in physical form which could be difficult to preserve in the framework so such kind of resources should be kept as it is in order to use them for further production when it is required is the comments suggested by the participant.

5.5. Evaluation of the proposed framework

Design science research emphasized on creation and evaluation of IT artefacts. Design science research is also emphasized on building and evaluating the artefact in order to achieve the listed objectives. According to(A. R. Hevner et al., 2004b) an IT artefact can be evaluated in terms of completeness, usability, usefulness, utility, applicability and other

quality attributes. The evaluation criteria of artefact are using its usefulness, utility, applicability and completeness are considered to evaluate the framework (Comyn-Wattiau, &Akoka, 2014, Seblewongel Mamo, 2019).

Evaluation is one of the main activities of the phase under design science research (Prat et al., 2014)

In this study the proposed framework is evaluated by the two key experts from the ministry of culture and tourism, two key experts from the Addis Ababa Culture and tourism bureau and two IT experts from the federal small and medium manufacturing industry promotion authority, and a total six key experts were used to evaluate the framework in the help of descriptive statistics.

The evaluation is captured by using questionnaires that use five-level of the rating scale, where 1 stands for strongly disagree, 2 for disagree, 3 for neutral 4 stands for agree and lastly 5 stands for strongly agree, where the maximum is happen if all key experts are responding by saying that strongly agree that gives the value of 30. On the other hand, the value gets to a minimum if all participant designated for evaluation is all saying strongly disagree which gives the result of 6 whereas the average becomes 15. All results evaluated by the experts are supportive since all the results indicated in the given figure 6-8 are above average.

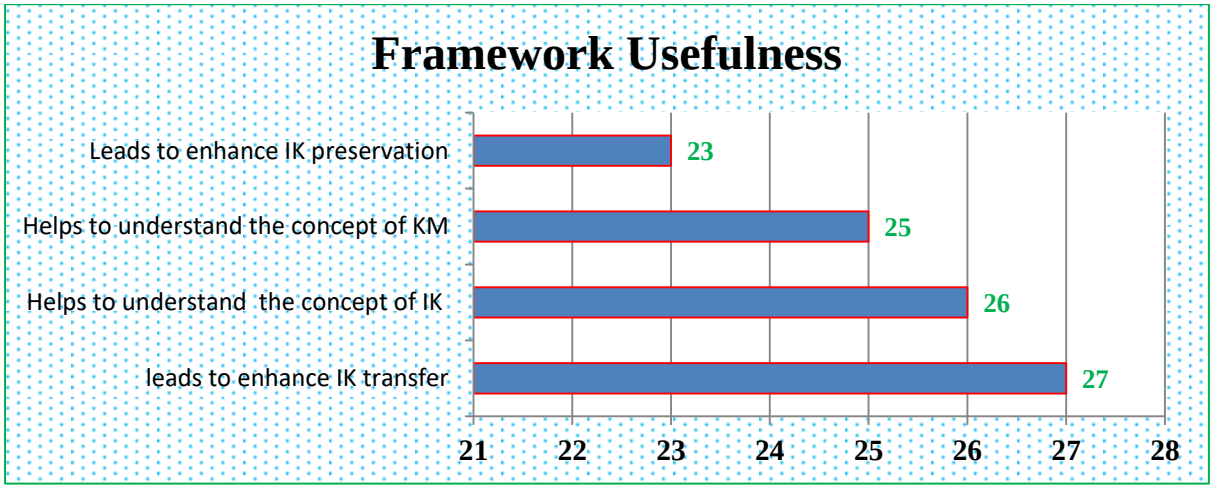

Figure 6: Evaluation result for framework usefulness

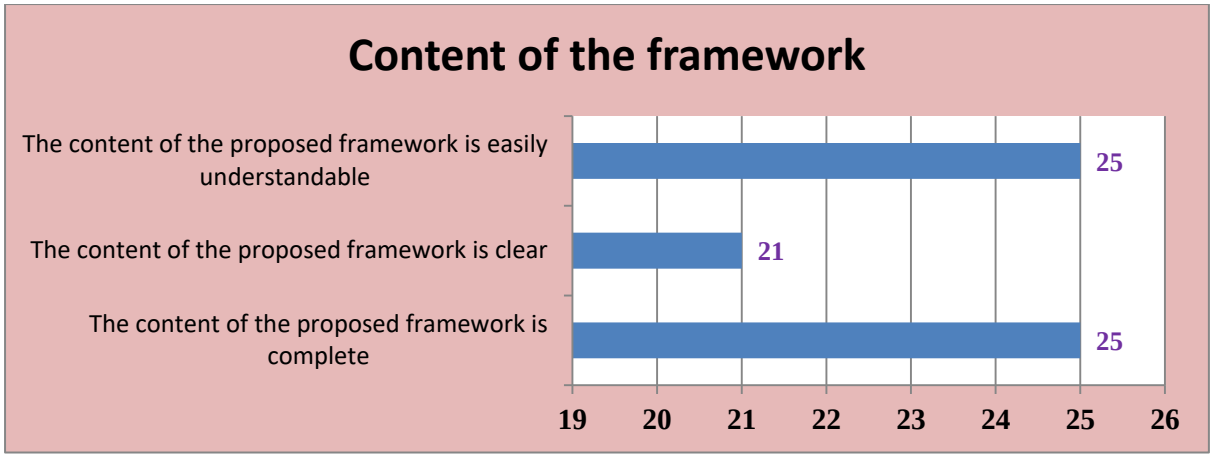

Figure 7: Evaluation result for content of the framework

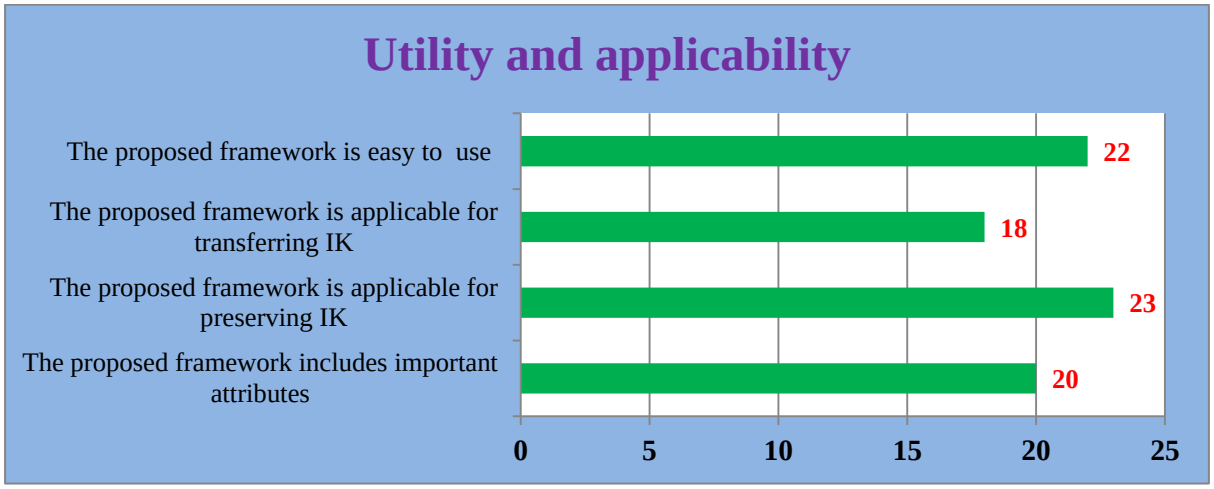

Figure 8: Evaluation result for framework utility and applicability

Finally, the Evaluation of the framework was made by interviewing respondents; and also professionals were talked about in individually for the appropriateness of the Indigenous Knowledge Management Framework components demonstrates the framework correctness. Creation and evaluation of an artefact is the main emphasis area of design science research as a result by identifying a requirement we have developed an artefact that could preserve and transfer indigenous knowledge of traditional cloth production. According to Hevner, (A. Hevner, 2004) an IT artefact can be evaluated in terms of completeness, usability, usefulness, utility and applicability and other quality attributes. Moreover evaluating criteria using its usefulness, utility, applicability and completeness are considered to evaluate the framework (Prat et al., 2014) (Comyn-Wattiau, &Akoka, 2014), (Seblewongel ,Mamo, 2019).

Based on the rating scale 1 refers to strongly disagree and 5 refers to strongly agree and number of experts who participated in the evaluation is 6. Responses to The lower rating will be expected to be 6(1 lower mark x 6 experts = 6), the highest rating is expected to be 30 (5 x 6 expert= 30), and an average rating is expected to be 18. On the whole, these results are supportive, and acceptable by experts who evaluate it. All result is above average.

5.6. Finding

The discussion begins with the discussion of main of the study, followed up with the summary of limitations, implications and contributions of the study.

The findings also indicated that the majority of the respondent that indigenous knowledge was the knowledge that was transferred and preserved from one generation to another is still by word of mouth. The findings also indicate that indigenous knowledge transfer and preservation is still not well organized with ICT tools and databases so as to store it for the next generation(Katazo Natasha Amunkete,2020).

Few owners of IK indicate that indigenous knowledge was transferred from parents to their family but nowadays, families who are capable of the indigenous knowledge are not interested or motivated to transfer their knowledge to their children because the task is not satisfactory to manage their life in addition to this the designs are frequently changed with a short period of time due to this flexibility, children or young generation are now become in challenge to manage the high rate of design change.

Other findings also show that parents are interested to engage their children in formal education rather than following their pattern of life not to stick to indigenous knowledge that could be ignored by the society and the government not to organize the knowledge holder to access resources or raw material, and adjusting working environment for them for shopping what they produce rather than giving for another who have extra shopping places.

Katazo Natasha Amunkete, (2020) used e-learning technology for presenting indigenous knowledge of Namibia's medicinal plants to ensure that individuals can internalize and preserve and share indigenous knowledge. we also analyses and identify IT infrastructure gabs to full fill the challenges of our ICK preservation and transformation as per our interviewed data, Most respondents also indicate that there is no training school available to

keep and transfer their knowledge to the next generation as result the new generation is still in challenge to get their knowledge from their parents in the formal way using digitalization. IK and practices are usually unwritten, thus IK holders rely on oral transmission and memory. In addition life styles and other aspects of culture and unavailability of well-organized infrastructure for keeping and transferring indigenous knowledge create a situation that informal way of passing knowledge to the young generation is still in practice (Nduka & Oyelude, 2019).

5.7 Discussion

As stated in chapter one section 1.2 the statement of the problem is loss of indigenous knowledge of traditional cloth production in shiromeda due to modern technology and globalization ,besides the knowledge is mostly hold by old individuals are exposed in loss of memory and even pass away with what they have in their head ,tacit knowledge.
Understanding the seriousness of the problem identified, we accomplished a qualitative study using interviews and observation to propose a solution to the gab of knowledge Preservation and transfer observed at shiromeda traditional cloth production. We also collect data using questionnaires and analyze quantitatively to find out the solution infrastructure requirements for preserving and transferring the intended ICK. The proposal lets experts, stakeholders; knowledge holders (weavers association) preserve the ICK and transfer the knowledge between these actors and new weavers, as it is demonstrated in the framework (which is depicted in figure 5). These actors are interacting to preserve the knowledge as archiving documents such as cloth working manuals, cloth history, and brochures, and so on. The IK knowledge as knowhow procedure is also stored as a knowledge base. So we can conclude that the ICK is preserved in such a way that solves the challenges of knowledge holders by interacting with the concerned governmental organizations for leading and facilitating the preservation.

One of the strength of the main findings that is mentioned in the statement of the problem as the interest of young generation is shifting toward western education (scientific knowledge) is checked again through the collected data. So the result indicates that the young generation is ignorant about the indigenous knowledge of traditional cloth production. So as not to waste the IK there should be an artefact developed, IK management framework that the researcher final result is to aid transferring indigenous knowledge to these young generations. As it is

seen from the framework (figure 5), the young generation s are part of the community who can be reached using face-to-face training. They are also aware of the ICK using digital platforms such as zoom, telegram, and through other Media.

To sum up, the strength of the study is development of ICK to ensure that indigenous knowledge should be preserved and transferred.

When we visualize the data generated through questionnaires there is no database system and well-furnished infrastructure with regard to concerned bodies leading to the development of a knowledge management framework that could help for availability and sustainability for future use.

It is also observed from the data as there is no laws and policies passed by the stakeholders mainly government) in relation to preserving and transferring indigenous knowledge of traditional cloth production is still overlooked (Katazo Natasha Amunkete, 2020). This practice is still being left unregulated; unsupported, and not fully recognized by government bodies.so our framework interacts with researchers, experts, researchers, community, IT physical and digital infrastructures to solve or minimize the weakness.

The knowledge gained by trainees during training was mainly acquired through observation, imitation, following orders, and performing tasks practically. So the transfer of knowledge is mainly dependent on the attitude of the intended knowledge recipient, moreover, collaboration as teamwork is the driving engine for effective transfer and preservation of indigenous knowledge.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1. Overview

This chapter presents an overall summary of this study. It focuses on showing how the results of the study relate to the original inquire about research questions and targets set out in the thesis. The chapter also gives suggestions that have arisen from this study and further research to be undertaken to assess the consistency and legitimacy of the proposed framework as well as expansions, refinements, or redresses that might yield a progressed KM framework.

6.2. Conclusion

This research is aimed to study the KM approach and todevelop a framework for sharing and preservation of IK oftraditional cloth production practices in Shiromeda, Addis Ababa, Ethiopia.The local people have been transferring their localknowledge through oral (parent to children).

Thefinding of this study showed that, IK of traditional cloth production practices is not captured and managed to make IK for futureuse and save IK from ever loss. To this end, IK preserves andtransmission framework is developed so that if applied IK canbe captured and managed and thus rescued from ever loss.The created Indigenous Knowledge Management Framework is to improve the inborn information preservation and exchange within the traditional cloth production sector to utilize the best production components in arrange to modernize the styles and increment the utilization traditional cloths. Internal knowledge still and underutilized assets within the development process in Ethiopia, it is in this manner very important to create Internal knowledge management frameworks that shall be made to assist store and share the innate knowledge with potential clients and other communities to both gain acknowledgment and to extend information era for further modernization. The analyst's trust for full improvement of Indigenous Knowledge Management Framework by exploring

the building pieces of the Inborn Knowledge Management System. Since there's an inadequacy in information conservation and exchange using ICT frameworks, there's a tremendous opportunity for making inquire about information designing for information representation, particularly of Inborn information.

The proposed Indigenous knowledge management framework is limited to the scope of Shiromeda traditional cloth production; from now on it is crucial to expand this investigation to develop an integrated Indigenous knowledge management framework for the full tradional cloth production of each nation and nationalities in Ethiopia.

6.3. Recommendation

Depending on the identified gaps and problems during the analysis the following recommendations covering four major aspects, the consideration of KM section, the development of KM technology and infrastructure, the formulation of KM policy and Strategy, and training, are recommended as below.

- **Cultural and Tourism sector should include IKM section in its structure**

Knowledge management sections provide advice to craftsmen regarding the flow of knowledge and recommendations for improving knowledge flow for increasing situational awareness and shared understanding throughout the organization. The responsibility to manage knowledge does not exclusively reside within the KM section; rather, it is the responsibility of the whole domain area professionals to preserve and transfer for the coming generation.

- **The organization need to develop its KM technology and infrastructure**

Some kind of infrastructure is normally required to support an organization’s knowledge activities. Now Todays technological tools are becoming more and more available for capturing, distributing, and finding knowledge. Therefore the Cultural and Tourism sector must develop its own technological infrastructure so that traditional cloth production indigenous knowledge could be preserved and transmitted for the generation.

- **Cultural and Tourism Sector should formulate IKM policy and Strategy**

  The organization ought to define a KM methodology utilizing the proposed KMF as a blueprint, with the aim to transform the Cultural and Tourism sector into a knowledge

management-centric organization. The formulation of KM methodology has two overlay advantages for the organization. KM methodology could be a plan of activities that describes how the sector will oversee its knowledge better for the benefit of the organization. KM techniques need to be closely adjusted within the organization's overall strategy.

- **Trainings on IKM to be conducted on regular basis**

Giving Training on any action that offer assistance to create employee's capacity in KM is vital for fruitful knowledge management issue. Because it has been clearly uncovered from the data analysis that there is a considerable gap within the Cultural and Tourism sector in this regard, the organization ought to create and execute a well-focused and wide range of training and learning programs to concerning sectors within the organization

The KM framework serves as a basis for considering expansions, refinements, or rectifications that seem to surrender a progressed KM framework. This framework could be a beginning point for picking up a more profound understanding of KM issues in this study area. Each of the nine components and their course of action as well as their relationship can be analyzed in detail. Therefore, more research should be conducted within the field of KM within the traditional cloth production indigenous knowledge management in common and advance research to see into the evaluation of this framework in specific.

The study shall better be conducted at the national level instead of the case study of shiromeda. Hence, we will continue the study of the indigenous craft knowledge preservation and transfer on basis of digitalization aspects such as Cloud computing, content delivery mechanisms.

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Appendices

Indigenous craft knowledge transfer and preservation

Target group	Interview technique	participant	Sampling technique	
Master craft	Semi structured	16	Purposive	
Novice craft(apprentices)	Semi structured	10	Purposive	
• Related department from ministry of culture and tourism • federal small and medium enterprise • Addis Ababa culture and tourism bureau		15 from ministry of culture and tourism. 5 from FSMMIPA 10 from Addis Ababa culture and tourism bureau	Purposive	Questionnaire

Knowledge preservation among indigenous Cloth production in Shiromeda

For master craft indigenous craft knowledge preservation interview question

Appendix A part 1:

Section A: General Information

1. Gender Male ☐ Female ☐

2. Age

15 – 20 ☐ 21 – 30 ☐ 31 – 40 ☐ 41 – 50 ☐ 51 and above ☐

3. Are you a qualified Cloth producer?

Yes ☐ No ☐ I am practicing ☐

Other(specify) ----------

---

4. For how many years have you been weaving the cloth of tradition?

0 – 2 ☐ 3 – 5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 and more ☐

5. How many craftsmenhave you educated weaving traditional clothes?

0 ☐ 3 – 5 ☐ 6 – 10 ☐ 11-15 ☐ 16 and more ☐

6. Are you trying to preserve indigenous craft knowledge?

Yes ☐ No ☐

If yes how ----------

7. Tell me about the challaenge to preserve indigeneous craft knowdlege particularily traditional close production?

---

8. Tell me about the opportunities to preserve indigeneous craft knowdlege

---

---

9. Do you believe traditional close production should follow the traditional way of preserving and transferring indigenous knowledge? Yes/ No Why?

---

10. what tool or device do you use to preserve indigeneous craft knowdlege ?

---

11. How do you rate stakeholders in providing resources and facilitating for the preservation and transfer of indigeneous knowdlege?

---

1 2. How do you make sure that the knowledge you gained over the years is preserved for future use?

---

13. What are the methodologies employed to preserve indigenous craft knowledge especially for traditional cloth producers?

---

14. How do you ensure that the correct knowledge is preserved for traditional close production?

---

15. What more can you add with regards to knowledge preservation by traditional cloth production?----------

Knowledge preservation among indigenous Cloth production in Shiromeda

For Novice craft (apprentices) or trainee indigenous craft knowledge preservation interview question

Appendix A part 2:

Section A: General Information

1. Gender Male ☐ Female ☐

2. Age

15 – 20 ☐ 21 – 30 ☐ 31 – 40 ☐ 41 – 50 ☐ 51 and above ☐

3. Are you a qualified traditional Cloth producer?

Yes ☐ No ☐ I am practicing ☐

Other(specify) ----------

---

4. For how many years have you been working in traditional close production?

0 – 2 ☐ 3 – 5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 and more ☐

5. By how many craftsmen have you been trained for traditional clothe production?

0 ☐ 3 ☐ 4 ☐ 5☐ 6 and more ☐

6. Are you trying to preserve indigenous craft knowledge?

Yes ☐ No ☐

If yes how ?----------

7. How do you get knowledge about traditional cloth production?

---

8. Where do you acquire knowledge about the craft skill?

---

9. Have you ever faced a problem during the production of traditional cloth?

Yes ☐ No ☐

If yes what was the problem

How do you solve it?

---

10. What were your motivations to become a craftsman and choosing it?----------

---

---

11. Have you observed indigenous knowledge that was preserved for the next generation?

Yes ☐ No ☐

If yes, what are the tools applied to preserve it?

.....

12. As a trainee are you keeping indigenous knowledge that you got from trainer?

Knowledge transfer among indigenous Cloth production in Shiromeda

For Novice craft (apprentices) indigenous craft knowledge transfer interview question

Appendix B: Part 1:

1. What is your base or foundation to become a traditional Cloth producer?

   ---

2. Tell how and why did you select your trainer?

   ---

3. How long did it take you to complete your training?

   ---

4. What were you mostly doing during training?

   ---

5. What methods were used to share experiences during training?

   ---

6. Is there any challenge during the transfer of indigenous craft knowledge (traditional cloth production?

   Yes ☐ No ☐

   If yes what are the challenges ---

   ---

7. Is there any opportunity during the transfer of indigenous craft knowledge (traditional cloth production?)

   Yes ☐ No ☐

   If your answer is yes what are the opportunities---

Appendix B part 2:

Knowledge transfer among indigenous Cloth production in Shiromeda

For master craft indigenous craft knowledge transfer interview question

1. How do you transfer skills and knowledge of traditional Cloth production to your trainees?

---

2. What do you do practically to transfer your abilities and know- how to trainees ?

---

3. How was the knowledge of traditional Cloth production transferred to you?

---

4. . Do you believe as you have special skills which are not retained by any other employee/craftsman within the organization you work for?

Yes ☐ No ☐

If yes what is that special skill?

5. What is the nature of your relationship with other Cloth producer?

---

6. What are the methodologies applied to transfer knowledge among cloth producers?

---

7. What are the contents to be transferred regarding traditional cloth production? ----------

8. What are the techniques used during knowledge transfer process?

---

9. How common is knowledge sharing among traditional cloth producers? ----------

10. when is the proper timing for knowledge transfer?----------

11. Apart from stated what can you add concerning knowledge transfer among cloth producers? ----------

Appendix C:

Questionnaire

I am conducting a research which aims to Design knowledge management framework that transfer and preserve indigenous craft knowledge: in the case of Cloth production in Shiromeda, as part of the partial fulfilment of the Master's Degree in Information Science, at Addis Ababa University.

This survey is completely confidential and anonymous. No personally identifiable information will be collected and all information will be analyzed and reported in aggregate. None of the information requested will identify you or your unit. Your data will be treated with strictest confidentiality and will only be used for the purpose of this study.

I kindly request you to carefully and attentively read all the questions and give your genuine answers to the best of your knowledge by selecting the response that best represents your view. Please put a tick mark (✓) .

If you have any questions you may ask me.

Email address 2009e.cch@gmail.com

Personal Data

Q 2. Gender Mal☐ Female☐

Q 1. Age

1.18– 20 ☐ 2. 21 – 30 ☐ 3. 31 – 40☐ 4. 41 – 50 ☐ 5.51 and above ☐

Q 3. Level of education

Diploma ☐
Degree ☐
Master ☐
PHD ☐

4. Working position in the Ministry/enterprise/ bureau

---

5. What is/are the role of your Ministry/Bureau /enterprise in preserving and transferring Indigenous craft knowledge especially traditional cloth production?

6. Is there any study Conducted on traditional cloth production so as to preserve for future use?

Yes ☐ No ☐

If yes how could it be preserved----------
---

7. How the ministry/enterprise/bureau select best practices from master indigenous knowledge holder to the others?----------
---

8. Do you have an expert who is responsible for preserving indigenous craft knowledge particularly traditional close production? If not who is the responsible body?----------
---

9. Is there any modern technology currently used for preserving and transferring indigenous craft knowledge?

Yes ☐ No ☐

10. Is there any plan for preserving and transferring indigenous craft knowledge for the young generation?

Yes ☐ No ☐

If yes what material/technology will be provided for preserving the knowledge
---

11. Is there any policy, strategy or any kind of formal written document that helps to preserve and transfer indigenous knowledge?

Yes ☐ No ☐

Please put a tick mark (✓) in front of the question given 11 up to 20 by choosing one of it .

N0	Questions	Agree	Strongly Agree	Not Sure	Disagree	Strongly Disagree
Q12	Traditional cloth production environment is good					
Q13	The traditional cloth production training school is available					
Q14	There is favourable environment for craftsmen to promote team work.					
Q15	There are formal methods for preserving and sharing indigenous knowledge					
Q16	The benefits of knowledge sharing is well practiced by the experts					
Q17	The concerned organization utilizes ICT to support knowledge sharing and preservation among the experts					
Q18	The physical work environment is encouraging for knowledge sharing					
Q19	The concerned organization has databases to store activities, procedures and other traditional cloth materials					
Q20	No system and procedures that support knowledge sharing					
21	Lack of awareness regarding indigenous knowledge transfer and preservation in the profession area					

Appendix D

Instrument one: Checklists Guideline for Observation

The purpose of this checklist is to observe the traditional cloth production of Shiromeda province.

Background information

Sub-city _____Woreda _____ Date _____

Physical setting	• How is the physical appearance of traditional cloth production environment? • Do traditional cloth producers share and preserve their experiences? • What resources are available for traditional cloth production? • How many learners of traditional cloth producers are involved in specific training session /working area? • Is there concerned body which work to acquisition, transfer and preserve the craft skill experiences and material resources? • Is there ICT infrastructure or any technology to acquisition, transfer and preserve the craft skill experiences and material resources?
Activities and interaction	• What are the activities of traditional cloth production during work time? • What are the contents of the training orientation given to the learners by the senior traditional cloth production? • What mechanisms do the craftsmen used to improve their production style and its quality? • Is there anybody which documenting procedure of work and what mechanism are they using? • What means is used at work place to share their experiences and knowledge willingly? (meetings, trainings, discussion or other means)
Training method	• What are the common training techniques employed by the senior craftsmen in teaching skills to learners? • Is there any formal knowledge sharing methods? • Do the training methods increase preservation? (Doing a dramatic presentation, simulating the real experience, doing the real cloth production activities)
Materials	• What kinds of materials used for traditional cloth production?

- What is the cost of the material purchased?

Evaluation
- Is there any measurable evaluation method used to evaluate the quality of the traditional cloth production? (Asking oral questions, observing and providing feedback, etc.)

Challenges
- What are the potential challenges that affect the traditional cloth production? (For example, market, space, shortage of resources, etc.)?

General observations (if any)

Appendix E

KMF evaluation criteria

Put a tick mark according a given number given from 1-5 for your evaluation by observing the rating scale given here as 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree and 1 for strongly disagree.

Criteria	1	2	3	4	5
1 .Framework Usefulness					
Q1 Leads to enhance IK transfer					
Q2 Helps to understand the concept of IK					
Q3 Helps to understand the concept of KM					
Q4 Leads to enhance IK preservation					
2 Content of the framework					
Q5 The content of the proposed framework is complete					
Q6The content of the proposed framework is clear					
Q7 The content of the proposed framework is easily understandable					
3 Utility and applicability					
Q8 The proposed framework includes important attributes					
Q9 The proposed framework is applicable for preserving IK					
Q10 The proposed framework is applicable for transferring IK					
Q11 The proposed framework is easy to use					

Guideline for a semi-structured interview

Amharic Version

Knowledge preservation among indigenous Cloth production in Shiromeda

For master craft indigenous craft knowledge preservation interview question

Appendix A part 1:

Section A: General Information

1.ፆታ ወንድ☐ሴት ☐

2.ዕድሜ

15 – 20 ☐ 21 – 30 ☐ 31 – 40 ☐ 41 – 50 ☐ 51 and above ☐

3.ብቃትያለውየጨርቅአምራችነዎት?

አወ ☐ የለም ☐እየተለማመድኩነው☐

4.የባህልንጨርቅለስንትአመትስታመርቱነበር?

0 – 2 ☐ 3 – 5 ☐ 6 – 10 ☐ 11 – 15 ☐ 16 and more ☐

5.ባህላዊልብሶችንለመሸመንምንያህልየእጅባለሙያዎችንአሰልጥነዋል?

0 ☐ 3 – 5 ☐ 6 – 10 ☐ 11-15 ☐ 16 and more ☐

6. አገርበቀልየዕደጥበብንለማቆየትእየሞከሩነው? ከሆነእንዴት

አወ ☐ የለም ☐

ከሆነእንዴት----------

7. የባህላዊልብሶችንየአሰራርእውቀትወይምኪህሎትለማቆየትየሚያጋጥሙፈተናዎችምንምንናቸው?----------

---

8.ባህላዊልብሶችየእጅሥራዕውቀትንለማቆየትመልካምአጋጣሚዎችምንምንናቸው?----------

9.
ባህላዊየልብስምርትአመራረትዕውቀትንጠብቆለማቆየትእናለማስተላለፍባህላዊውንመንገድመከተልአለበትብለውያምናሉን
?

አላምንም/አምናለሁለምን----------

10.የባህላዊአልባሳትየእጅሥራዕውቀትንለማቆየትምንአይነትመሣሪያትጠቀማላችሁ?

11.
የሀገርበቀልዕውቀትንለማስጠበቅእናለማስተላለፍሀብቶችንበማቅረብእናበማመቻቸትረገድባለድርሻአካላትንእንዴትይታያ
ሉ?

---

12. ባለፉትዓመታትያገኙትእውቀትለወደፊቱጥቅምእዲሰጥተጠብቆመቆየቱንእንዴትያረጋግጣሉ?

---

13. ሀገርበቀልየዕደ-ጥበብዕውቀትንበተለይምለባህላዊየጨርቅአምራቾችለማቆየትዘዴዎችምንድናቸው?

---

14. ባህላዊየልብስአሰራርእውቀትበትክክልእንደተጠበቀእንዴትያረጋግጣሉ?

15.በባህላዊየጨርቃጨርቅማምረቻየእውቀትጥበቃንበተመለከተምንተጨማሪነገርሊጨምሩይችላሉ?

Knowledge preservation among indigenous Cloth production in ShiromedaFor Novice craft (apprentices) or trainee indigenous craft knowledge preservation interview question

Appendix A part 2:

Section A: General Information

1.ዕታ ወንድ☐ሴት ☐

2.ዕድሜ

15 –20 ☐ 30 31 – 4☐ 41 – 50 ☐nd above ☐ ☐

3. እርስዎብቁባህላዊየጨርቅአምራችነዎት?

አወ ☐ የለም ☐እየተለማመድኩነው☐

4. በባህላዊየልብስምርትውስጥለስንትዓመታትእየሠሩነበር?

0 – 2 ☐ 3 – 5 6 – 10 ☐☐11 – 15 ☐ 16 and more ☐

5. ለባህላዊየአልባሳትምርትስንትየእጅባለሞያዎችስልጠናተሰጥቶዎታል?

0 ☐ 3 4 ☐5 ☐ 6 and mo☐ ☐

6.አገርበቀልየዕደጥበብንለማቆየትእየሞከሩነው?ከሆነእዴት

አወ ☐ የለም ☐

ከሆነእንዴት----------

7. ስለባህላዊየጨርቅማምረቻእውቀትእንዴትያገኛሉ?

---

8. ያለወትንየሙያችሎታየትአገኙ?

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9. ባህላዊጨርቅበሚሠሩበትወቅትችግርአጋጥሞዎትያውቃል?

አወ ☐ የለም ☐

አዎከሆነችግሩምንነበር ----------

መፍተሄውስ ----------

10. የእጅባለሙያለመሆንእናእሱንለመምረጥያነሳሳውምንነበር?

---

11. ለመጪውትውልድየተጠበቀየአገርበቀልዕውቀትተመልከተዋል?

አወ ☐ የለም ☐

አዎከሆነእሱንለማቆየትየተተገበሩመሳሪያዎችምንድናቸው?----------

---

12. እንደተለማማጅከአሰልጣኙያገቸውንአገርበቀልዕውቀቶችእየጠበቁነው?

Knowledge transfer among indigenous Cloth production in ShiromedaFor Novice craft (apprentices) indigenous craft knowledge transfer interview question

Appendix B: Part 1:

1. ባህላዊየጨርቅአምራችለመሆንየእርስዎመሠረትምንድነው?
   ---
2. አሰልጣኝዎንእንዴትእናለምንእንደመረጡይንገሩ?----------
   ---
3. . ስልጠናዎንለማጠናቀቅምንያህልጊዜፈጅቶበዎታል?----------
   ---
4. በስልጠናወቅትበአብዛኛውምንያደርጉነበር?----------
5. በስልጠናወቅትልምዶችንለማካፈልምንዘዴዎችተጠቀሙ?----------
   ---
6. አገርበቀልየዕደ-ጥበብዕውቀትን (ባህላዊየጨርቅማምረቻ) በሚተላለፍበትጊዜፈታኝሁኔታይኖርይሆን?---
   ---
   አዎከሆነተግዳሮቶቹምንድናቸው?----------
7. የአገርበቀልየዕደ-ጥበብእውቀትለማስተላለፍመልካምአጋጣሚይኖርይሆን?
   አወ ☐ የለም ☐
   መልስዎአዎከሆነእድሎቹምንድናቸው? ---

Appendix B part 2:

Knowledge transfer among indigenous Cloth production in Shiromeda

For master craft indigenous craft knowledge transfer interview question

1. ባህላዊየጨርቃጨርቅማምረቻችሎታዎችንእናዕውቀቶችንለሠልጣኞችዎእንዴትያስተላልፋሉ?----------
---

2. ችሎታዎችዎንእናዕውቀቶችንለሠልጣኞችለማስተላለፍበተግባርምንያደርጋሉ?----------

---

3. የባህላዊየጨርቅማምረቻእውቀትእንዴትወደእርስዎተላለፈ?----------

---

4. በሚሰሩበትድርጅትውስጥበማንኛውምሌላሰራተኛ / የእጅባለሙያየማይጠበቅልዩችሎታእንዳለዎትያምናሉ?

አዎ ☐ የለም ☐

አዎከሆነያልዩችሎታምንድነው?----------

5. ከሌሎችየጨርቅአምራችጋርያለዎትግንኙነትምንነትነው?----------

6.በጨርቅአምራቾችመካከልእውቀትንለማስተላለፍየተተገበሩዘዴዎችምንድናቸው?----------

7.ባህላዊየጨርቅማምረቻንበተመለከተየሚተላለፉትይዘቶችምንድናቸው?----------

8.በእውቀትሽግግርሂደትውስጥምንዓይነትዘዴዎችጥቅምላይይውላሉ?----------

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9. በባህላዊየጨርቅአምራቾችመካከልየእውቀትመጋራትምንያህልየተለመደነው?----------

10.ለእውቀትሽግርትክክለኛጊዜመቼነው?----------

11.ከተጠቀሰውበተጨማሪበጨርቅአምራቾችመካከልየእውቀትሽግርንበተመለከተምንማከልይችላሉ?
