

## The Academic Research Community Publication

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# The Digital Paradox When Future and Tradition Co-Exist: Contemporary Fashion with Augmented Reality

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### Abstract

Nowadays, the fashion world has undergone significant transformations in the digital era, with technology playing a crucial role in various aspects. The digital era has transformed the fashion industry by redefining how fashion is produced, marketed, and consumed. Technology has opened up new opportunities for creativity and innovation within the fashion landscape. This research explores the intersection of digital technology and traditional fashion by examining the paradoxical coexistence of the future and tradition in the realm of contemporary fashion, specifically through the integration of Augmented Reality (AR) experiences. The importance of this study lies in understanding how fashion, as a reflection of culture, adapts and evolves in the digital era while still preserving its historical and cultural significance. By addressing this paradox, the research aims to shed light on the potential solutions and implications for the fashion industry. The primary problem addressed in this work is the tension between embracing technological advancements and maintaining the authenticity and heritage associated with fashion. Through a Qualitative approach, including observation, interviews, and literature studies, the methodology aims to investigate the various ways in which AR is currently being integrated into fashion. The results of this study provide insights into the benefits and challenges of incorporating AR in fashion, including enhanced consumer engagement, personalized experiences, and increased value. By examining the coexistence of the future and tradition, this study aims to bridge the gap between technological advancements and the preservation of cultural heritage in the dynamic landscape of fashion.

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### Keywords

*Augmented Reality Fashion; Fashion technology; Cultural Heritage; Digital technology; Preservation*

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## 1. Introduction

The Fourth Industrial Revolution (4IR) has brought about changes in various sectors and fields. The rapid and revolutionary development of technology has had a global impact. Especially since the Covid-19 Pandemic that occurred around the world has brought dominant changes, and changed the lifestyle of people around the world. The pandemic has also brought a vital role for technology and digitalization to become the pivot in turning the wheels of

industry and economy globally. This has also led people to quickly adopt digital technology as an increasingly integral part of their daily lives. The influence of this technology has become inevitable.

Peter H Diamandis and Stephen Kotler (2020) in their book "The Future is Faster than You Think" state; that in this new decade, we will witness a process of technological acceleration that is much faster than 100 years ago. The use of Artificial Intelligence (AI), Machine Learning, Big Data, Computer-Aided Design (CAD), 3D Printing, and Extended Reality (XR) is no longer a concept out of a science fiction book but has become a real necessity in various sectors and industries. There is a major change in the habits and mindset of people around the world, which is shown by people appreciating the value of digital technology in their lives. On the other hand, the 4IR also often has a dangerous side as it can shift local cultures and traditions that have been passed down from generation to generation. This causes degradation so that many younger generations do not understand or understand the traditional and cultural values of their ancestors (Azima, Purnamasari & Dewi, 2021; Bahrudin, Masrukhi & Atmaja, 2017; Gondoputranto & Dibia, 2022). But even though it is stated that the 4IR has a role in fading existing local traditions and cultural values, the acceleration and advancement of technology brought in the presence of the 4IR can also open up many potential opportunities. One of them is utilizing technology and digitalization to preserve local traditions and values that are already fading. The acceleration of technology and digitalization has a paradoxical nature so although it is often considered dangerous because it can shift local culture and traditions, this technology and digitalization can also be used to preserve and tell the values and traditions of local cultures that are threatened with extinction. This will also be in line with what Housley & Yong (2021) said that digital technology will also be very useful in protecting and improving ecology, rebuilding global systems, and providing new possibilities for self-expression and community action in future societies. As we enter Society 5.0, Digital technology will be integrated into every sector and will be influenced by how the reaction of society and the resilience of the sector can adapt digital technology to be able to have a positive impact on forming an innovative and strategic global ecosystem. Piliang (2018) states that we currently live in the reality of a Trans-cultural society with digital networks that are connected to each other. This view is in line with what is the concept in Society 5.0 which emphasizes two kinds of relationships that are connected. Namely the relationship between technology and society, where technology mediates the relationship between individuals and society (Deguchi et al, 2020). When viewed in this relationship and relationship, it can be depicted in the figure below.

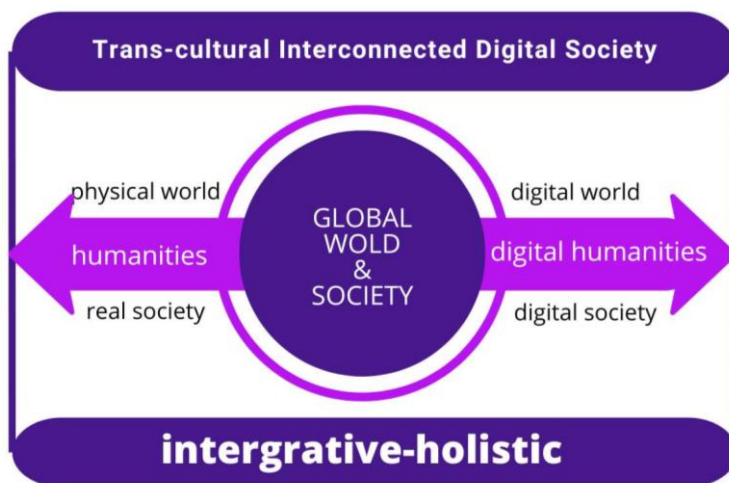


Figure 1. Integration of the global world and society in a trans-cultural Interconnected Digital Society

It can be seen in Figure 1 above that in the 4IR where technology has become part of society and reality is increasingly blurred until the transition of unification between the cyber world (cyberspace) and the real world, which affects the system, lifestyle, and economy of the community. So digital technology can finally be integrated with the social life of society into an integrative holistic

When entering 4IR, many sectors are forced to adapt by implementing digital technology to survive in this situation by forming an adaptive ecosystem. One of the sectors that is quite adaptive and resilient in the 4IR flow is the Fashion sector. Fashion analysts of the world business "Business of Fashion (BOF)" in collaboration with McKinsey Company, a global company of Social Economic observers and consultants stated; that in 2021 the world's major

Fashion Companies and Brands invested 1.6 - 1.8% of their total revenue in technology. It is projected that by 2030 the percentage will increase to 3 - 3.5%. Digital technology is expected to be very influential in the Fashion sector, from internal processes to customer experiences (2022). Another thing that is increasingly in demand is the use of digital technology in communicating various messages such as one of them is the use of Extended Reality (XR). Extended Realities (XR) refers to all real and virtual environments, the existence of combined environments, and human-machine interactions generated by computer technology and wearable devices. Extended Reality (XR) refers to an understanding of the use of a spectrum of reality that uses various immersive technologies, one of which is Augmented Reality (AR). Communicating messages through Augmented Reality (AR) can provide an interactive and immersive multisensory experience. This sensory experience is increasingly in demand because it can convey messages, provide experiences that function all human senses and produce impressions through visual, feeling, touching, hearing, and kinesthetic. This is interesting because it provides value from the user experience. In addition, it also adds to the attractiveness of a product because this experience can provide influence and new cognitive and perceptual experiences for users (Nguyen & Bednarz, 2020). Furthermore, the concept of wearable interactive clothing integrated with technological imagery will be an issue based on human-centered design which will focus on the interactivity of users and audiences to communicate a certain message both verbally and non-verbally (Giacomin, J, 2014).

## **1.2 Aim and Scope**

This research aims to demonstrate the paradoxical nature of digital technology and show a framework to utilize the paradoxical nature in a creative process. For this reason, the process will be described through the implementation of an example of the application of AR technology in the form of contemporary fashion to promote culture. The traditional culture taken is the weaving culture of the Sasak Sade tribe in Lombok Indonesia.

The research will focus on the cultural traditions of the Sasak Sade tribe in Lombok, especially the weaving culture which has a distinctive socio-cultural value in the Sasak Sade tribe. The research will identify motifs, symbols, and weaving techniques that are characteristic of the Sasak Sade weaving culture. The use of Augmented Reality Technology will be integrated into contemporary fashion inspired by the weaving culture of the Sasak Sade tribe. In the process, it will be shown that AR technology allows users to provide messages or information and the audience can also receive and capture information through the design and AR technology displayed.

The paradoxical aspects of digital technology will be explained and presented, and it will also be highlighted how technology that is often considered disruptive and destructive can be transformed into a creative process in promoting the cultural traditions of the Sasak Sade tribe through contemporary fashion with AR technology. Within the scope of this research, the creative process of using AR Technology to promote the weaving culture of the Sasak Sade tribe will be shown. This research has a strong goal of preserving and raising awareness about the weaving culture of the Sasak Sade tribe. In addition to promotion, this research will also highlight the importance of preserving local wisdom and developing a sustainable creative economy within the Sasak Sade tribe community.

## **1.2 Leveraging the Paradoxical Nature of Digital Technology**

In this research, the message to be communicated and raised is the introduction and promotion of a local tradition and wisdom using the adaptive nature of technology. Departing from the paradoxical nature of technology, although it is often blamed as one of the causes of the erosion of a local tradition and culture, technology is a powerful medium that can be used in promoting a local culture, which of course will provide benefits in maintaining the continuity of a tradition and culture through the promotion of the culture. Digital technology can provide a great opportunity to preserve and introduce local culture and wisdom to the world. By using technology adaptively, by seeing, and utilizing the conditions and needs to promote local culture, this paradox can be overcome. Technology is not only a tool or a machine, but it is also a whole set of relationships between people, equipment, and fields of knowledge. Digital technology also affects communication because it brings new elements to reconstruct and recreate a subject, a form, or an imaginary world. This technology also tends to integrate and change its form and contextual meaning in the process of formation (Appadurai, 2013). There is an assumption that the rapid advancement of digital technology is considered to shift culture and tradition because technology is considered disruptive and has a destructive nature. The

acceleration of technology through globalization brings pressure and disruption to local traditions and cultures (Mubah, 2011). To be able to utilize the paradoxical nature of technology, there needs to be a different process and context of thinking to be able to change the disruptive and destructive image caused by the acceleration of technology in this 4IR era. Piliang (2019) suggests the need to change this view in a new framework that will reconstruct the disruptive and destructive nature of technology. The need for them to rethink involves a way of thinking where innovation and creative processes need to be embedded. The figure below is a reconstruction framework that involves the creative process and innovation that will be used in utilizing the paradoxical nature of technology.

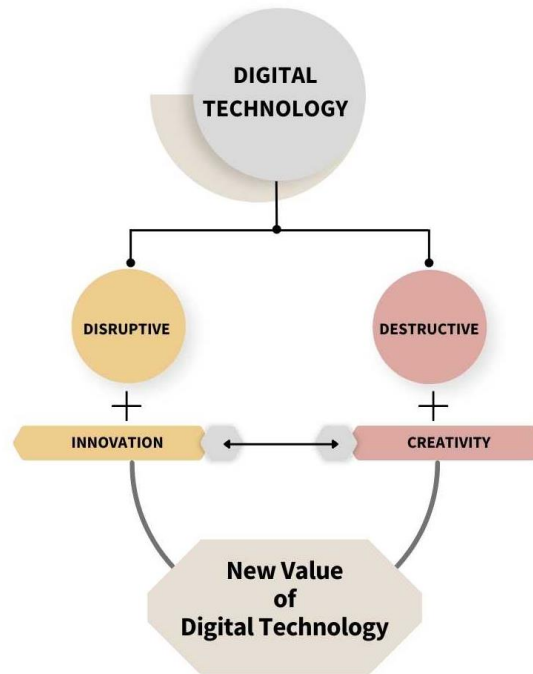


Figure 2. Reconstruction Framework in utilizing the paradoxical nature of Digital Technology

Looking at Figure 2. above, it can be seen that when digital technology is considered to have a disruptive nature. The occurrence of disruption is a phenomenon that brings a new order, a big leap from what existed before. It is undeniable that digital technology does bring phenomena and major changes in the existing order of society. Where it is feared that it will eliminate or shift the previously existing order including local culture and traditions. However, when the disruptive nature of this technology is given a different thought that contains innovation in it, it will produce a disruptive innovation (Innovative Disruptive) that provides a new value from digital technology. Furthermore, digital technology is also known to have a destructive nature and can destroy, and bring conflict that threatens the existence of local culture and traditions. However, when the destructive nature of digital technology is given a creative thought process (Creative Destructive), it will produce new thoughts and new ways that have more value (Schumpeter in Purnomo, 2021). By incorporating the reconstruction framework above, it can be seen that the paradoxical nature of digital technology can be utilized to achieve a holistic integration with society.

### 1.3 Fashion as Communication and its Relation to Technology for Promoting Indigenous Culture

Furthermore, it can be seen that culture itself is a set of communicative actions. Where communication is something that allows groups and individuals to represent themselves and interact with the world through norms and values (Combi. 2016). Starting from the view that humans can utilize technology to be more about their cultural origins, culture, and expectations imaginatively (Markusen & Krogh, 2008). Therefore, this research will raise the local culture and tradition of one of the tribes in Indonesia. The multicultural potential of the Indonesian nation is strongly reflected in the various ethnic and cultural diversity of each tribe that inhabits various regions in the archipelago of Indonesia. One of Indonesia's indigenous tribes is the Sasak Sade who inhabit the island of Lombok. The Sasak Sade tribe has received special attention from the Indonesian government because it has pristine cultural conditions and local perspectives, and is indeed one of the nation's local potentials. The Sasak Sade tribe was chosen as the focus of

research because it has unique local potential and reflects one of the cultural strengths of the Indonesian nation. This tribe has been in the spotlight of the government for maintaining its distinctive cultural conditions and local perspectives, despite challenges from modernization and globalization. Therefore, this research seeks to promote one of the local wisdom of the Sasak Sade tribe so that the traditions to be promoted will be appreciated by the wider community, including the younger generation, through the use of technology. Fashion and clothing in their context as cultural phenomena. Fashion can be used as a communication tool and explain the conception of communication. The conception is illustrated through the embodiment of fashion products. fashion as communication by showing various things that fashion and clothing may be used as communication, namely sending or receiving a message (Barnard, 2020). Fashion can communicate a message through various things. Fashion can evoke meaning and communication. This communication through fashion will express messages culturally and can be conveyed through the form and visual appearance of the product. In this case, digital technology will be used to add value and deliver and receive messages through the visual appearance of Fashion products.

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One of the prominent cultural traditions of the Sasak Sade Tribe is the culture of weaving. According to Nur Alam (in Mardiyati & Ismadi, 2016), weaving is a creative culture for Sasak women, where weaving is an ability that must be mastered for Sasak women because it is an indicator of maturity for Sasak women, along with the development of this habit is gradually fading, but in the Sasak Sade village, this weaving tradition is still firmly maintained. The tradition of weaving, techniques, and traditional fabrics produced can also describe customs, traditions, as well as cultural habits, which ultimately lead to the national identity of Indonesian society (Budiwanti, 2000: 11). Every woman in the village of Sade has been required to learn to weave from a very young age, namely at the age of 10 years. The Sasak people have a tradition and belief that if a woman is not yet skilled in weaving then she cannot get married because she is considered not to have reached maturity, which is why the weaving tradition is a philosophical tradition that has socio-cultural values that are still believed and applied today. This message will be conveyed through the embodiment of Contemporary Fashion with Augmented Reality technology, it is hoped that this tradition can also be introduced and promoted to the wider community and the younger generation so that it will help maintain and preserve this cultural tradition. In addition, it is also expected that the weaving of the Sasak Sade community will be more widely known when realized in the form of fashionable and interactive contemporary fashion.

#### **1.4 Augmented Reality in Contemporary Fashion to Promote Indigenous Culture**

Augmented Reality (AR) is a technology that allows a person to be able to blend with objects virtually, so this makes the existing reality also blend with the presence of virtual objects in the real world. This provides an interactive experience of immersive funds. The blending of virtual space in the real world is getting closer to people's daily lives due to the influence of the Internet in people's daily lives. The use and interaction generated through online or offline experiences such as in photos, videos, avatars, and the use of filters is something that is constantly used today (Logaldo, 2016). Augmented Reality has become a technology that is increasingly in demand today, because of its interactive nature, Augmented Reality can be used in various ways such as to provide education and information, it

can also be a media and advertising tool that leads to hypermedia experiences that are far more interactive and provide sensory experiences than traditional advertising media (Roxo & Brito, 2020). The presence of virtual artifacts and elements in the real world can create a new impression and sensation that is immersive and interactive for users.

In relation to cultural preservation efforts, AR has become one of the technologies widely adapted for museums to display virtual representations of a historical building or cultural site, and its use is increasing and popular in line with the 4IR era. Pietroni and Adami (2014) stated that the many efforts that have been made in displaying virtual and augmented representation images in digital environments are quite complex work. However, because AR is a suitable technology for conveying information in an interactive and interesting way, the adaptation of the use of AR technology is also getting wider (Pedersen et al, 2017).

In the fashion field, AR is not a new technology either. AR is often used in the field of Fashion retail to provide a better user experience such as Magic mirrors for virtual try-ons of fashion apparel products, where many fashion brands have also utilized this technology to expand the market and to maintain interaction with their consumers (Boardman et al, 2020). But AR can also open up a more interactive and immersive fashion experience, which will create a deep and interesting impression. In this research, AR is realized in the form of clothing where the message to be conveyed is the promotion of the local culture of the Sasak Sade tribe, namely the weaving culture. This will bring a form of preservation of cultural heritage and traditions, which when this preservation is carried out will increase the strength and standard of living for the area which indirectly also increases the resilience and identity of a nation.

## 2. Methodology

Relevant literature will be used in this research. Literature studies with a qualitative approach will be used to obtain syntheses obtained from various existing literacy sources, where later these sources will be processed to show the results of the data used (Synder, 2019). Qualitative approaches refer to non-statistical methods of collecting data, usually used in the study of phenomena that cannot be calculated such as language, history, or culture of a society (Bhangu et al, 2023). In this study, data were gathered through observation, depth interviews, and documentation. Observations were conducted as an instrument to explore more deeply the weaving culture of Sasak Sade. In qualitative research, the term sample is called an informant, namely a person who is a source of information. In determining this informant, the researcher used a purposive sampling technique.

According to Sugiyono (2021), Purposive sampling is a technique of taking data sources with certain considerations. This particular consideration, for example, is the person who is considered to know best about what we expect, or maybe he is the leader of a certain community who will make it easier for researchers to explore the object / social situation under study. The purposive sample technique was used to identify the informants, whereby researchers selected the informants for interview based on representative criteria (Mulyana, 2013). In this study, the informant criteria include: The heir of the Sasak Sade Tribe chief, the head of the Sasak Sade tribe Cultural Association dan two women as weavers of Sasak Sade. Also to gain feedback for the product prototype, five people of Gen Z representative are collected to test and give feedback for the product. Interviews and documentation were recorded using a camera and written notes. Interview results from various sources of informants were reduced according to the need to answer research questions.

Further data was obtained through unstructured interviews to collect and study the philosophical values of the Weaving Culture of the Sasak Sade Tribe. The kind of data gathered for this study is qualitative, meaning that due to the characteristics of the society under investigation, the data helps to clarify social phenomena or symptoms. The two types of data sources that were used in this study are as follows: Primary Data: Primary data is a variety of information and descriptions obtained directly from the source, namely the parties used as research informants. The parties used as research informants are the heir of the Sasak Sade Tribe chief, the head of the Sasak Sade tribe Cultural Association, and two women as weavers of Sasak Sade as representatives of the Sasak Sade Tribe weaving community. Secondary Data was also obtained. Secondary data are various theories and information obtained indirectly from the source, namely from various documents and forms of writing, books, and literature, as well as articles also other data relevant to the needs and objectives of the research. Secondary Data: Secondary data are

various theories and information obtained indirectly from the source, namely from various documents and forms of writing, books, literature, and articles, as well as from internet sites and also other data relevant to the needs and objectives of the research. The Qualitative Method approach, using observation resulted in data collection carried out by the researcher by observing and recording phenomena related to the object of research directly at the research site of Sasak Sade Tribe.

Using observation to understand more about the weaving culture in Sasak Sade Village. As well as the role of women weavers, the views and the values regarding the weaving culture in Sade village from the perspective of the heir of the Sasak Sade Tribe chief, and also the views of the weaving culture from The head of the Sasak Sade tribe Cultural Association. The interview technique is used to collect data obtained by asking several questions to informants in depth. Interviews were conducted by meeting face-to-face and asking questions orally to these informants. The documentation method was employed to bolster data and facts associated with the study, through documenting and gathering information from books, records, and archives kept by the village chief and the community.

The data analysis method refers to the statement of Kaelan (2005). The steps in applying the analysis method are 1) data reduction, 2) data display, and 3) interpretation and drawing conclusions. In the data reduction stage, the researcher selects the main things and focuses on the important things in the research. Then conduct a sharp analysis, classify, and direct research on the indicators that have been made before. In the Data display phase, the data that has been organized and data obtained from the field. While presenting the data, the information that has been compiled is drawn to a conclusion and actions that must be taken. The Interpretation (conclusion) phase is to interpret, and at the same time make interpretations of the data collected.

Guidelines developed based on observable aspects serve as a framework for data-gathering activities derived from interviews and documentation. The process of observation, interview, and documentation will provide the necessary data related to the symbolism and views on the Sasak Sade weaving culture, which will also lead to the expectations of the promotion and preservation of Sasak Sade weaving culture in the form of contemporary interactive fashion that elevated by digital technology. Furthermore, a framework will be developed that utilizes the paradoxical nature of digital technology, namely Innovation Disruptive & Creative Destructive, where the resulting hybridization produces a new value and value for digital technology.

## **2.1 Study Analysis**

In the preliminary stages of this research, an intricate analytical study unfolded, navigating the intricate interplay between culture and technology. Traditionally viewed as two distinct domains, culture, and technology sometimes seem incompatible, each firmly established in a niche with few points of interaction. This inherent tension arises from the perception that technology, particularly in its disruptive and rapidly evolving nature, might erode the foundations of traditional cultural practices. This paradox—the seeming inconsistency between tradition and technology—is acknowledged and addressed in the conceptual framework of this study. The study delves deeply into the nuances of this connection, recognizing that technology may be an effective instrument for cultural preservation, especially when used effectively. This research aims to provide a comprehensive understanding of how these seemingly contradictory forces may not only coexist but also work in concert to advance cultural traditions into the digital era, as opposed to maintaining the binary narrative of culture versus technology.

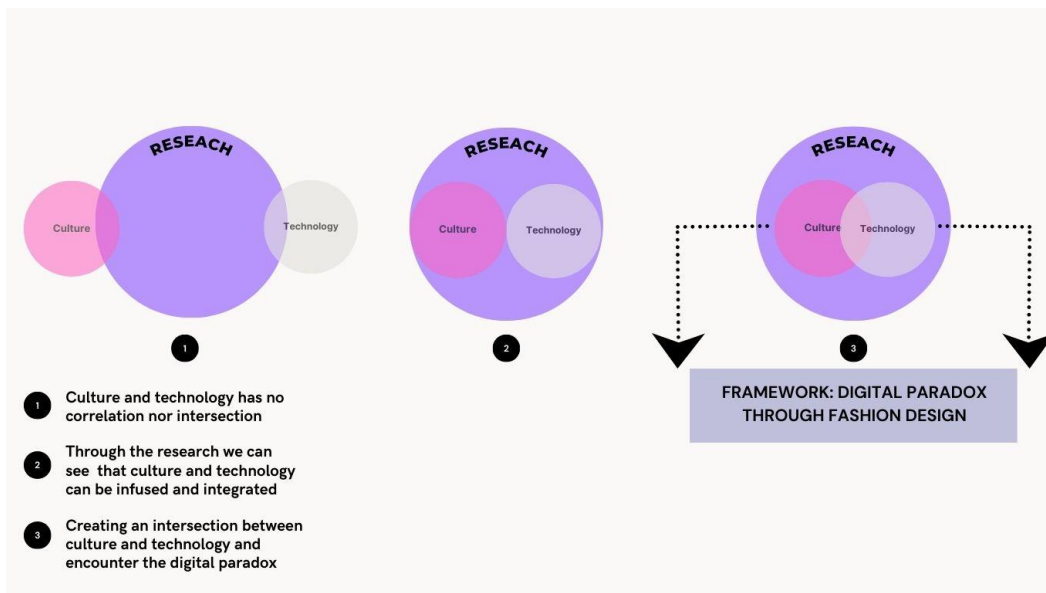


Figure 3. Creating an intersection between culture and technology to encounter The Digital Paradox

In Figure 3 above, this research can depart from two very opposite things, namely culture, and technology, where technology is often considered as one of the causes of the erosion of a culture. However, this research takes the approach that culture and technology can have intersections which will be able to produce a proposed framework. This research delves into the intricate relationship between fashion, communication, and technology, particularly Augmented Reality (AR), as a means to promote and preserve the weaving culture of the Sasak Sade tribe in Indonesia. The research is grounded in the knowledge that culture functions as a kind of communication since it allows people and communities to express who they are via norms and values. This perspective sees fashion as a means of communication since it embodies cultural meanings that are both transmittable and receptive. The choice of the Sasak Sade tribe, residing in Lombok, Indonesia, to focus on their weaving culture as the main point of research is deliberate. The tribe's unique cultural conditions and local perspectives make it a significant representation of Indonesia's rich cultural diversity. The Sasak Sade tribe's weaving heritage is highlighted in particular as a fundamental component of their culture, expressing social values, rituals, and traditions. This tradition, deeply embedded in the maturing process of Sasak women, is not just a talent but also a philosophical exercise. With the use of augmented reality technology and the creative prism of contemporary fashion, the research seeks to maintain and promote this legacy. One innovative method of preserving and promoting culture is the use of Augmented Reality in fashion. With the use of AR technology, things may be virtually blended with reality to create an engaging and dynamic experience. Its extensive application in fields including education, information sharing, and hypermedia advertising highlights its versatility. Other previous research shows that virtual reproductions of historical and cultural relics have been displayed virtually in museums using augmented reality.

The research methodology adopts a qualitative approach, leveraging literature studies, interviews, and documentation. Purposive sampling is utilized to acquire primary data from important informants, including the chief of the Sasak Sade Tribe's heir, the head of the tribe's Cultural Association, and two female weavers. Secondary data, comprising theories and information from various sources, supplements the primary data. The qualitative method, including observation, interviews, and documentation, is employed to gain insights into the weaving culture and its philosophical values. With an emphasis on augmented reality, the research is distinguished by a thorough examination of the intersection between fashion, communication, and technology.

Based on a thorough cultural analysis that explores the subtleties of indigenous culture and customs, the framework provides practical guidance rather than just a theoretical construct. It unfolds in stages, commencing with the identification and exploration of the local culture's unique facets. The subsequent phases seamlessly blend creativity and technology, aligning with the paradoxical nature of digital technology: Innovative Disruptive, and Creative Destructive. The power of the framework continues throughout the design and development phase when the complex

aspects of fashion are used to capture the spirit of the weaving heritage. Testing and prototyping are crucial milestones that ensure the intended result is in line with the goals of cultural promotion.

## 2.2 Framework: Digital Paradox through Fashion Design

This framework will originate from an existing local culture or tradition. Data through literacy studies and qualitative approaches through interviews will be summarized, then brainstorming and ideation will be carried out to develop a concept of the study data that has been carried out. The next stage is technology integration. This integration is done by incorporating the New Value of Digital Technology, namely Innovation Disruptive and Creative Destructive so that at this point technology with its paradoxical nature has a value or value that will be useful for a local culture or tradition. The implementation of technology through this framework can be used and adjusted to the needs, only in this research will AR technology be used. AR is used because it is considered to be used as a good promotional and storytelling tool for a local culture or tradition. The following figure below is a description of the framework used in this research:

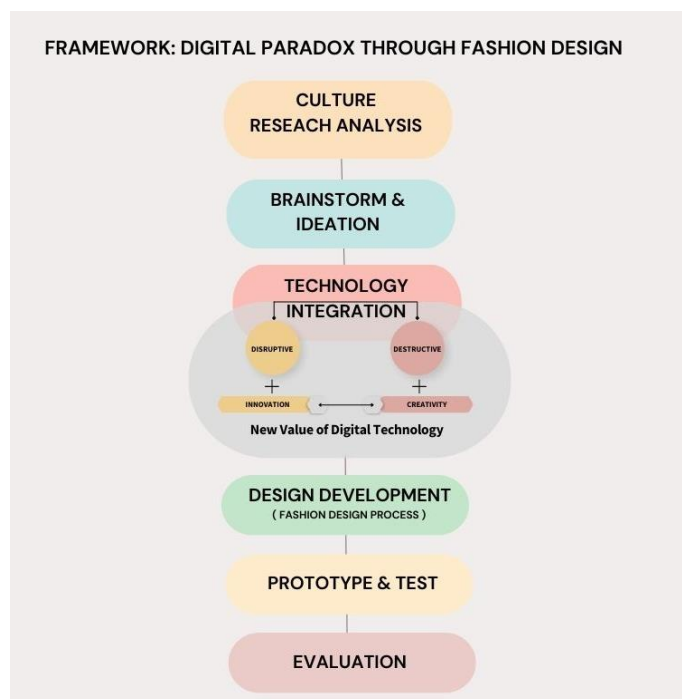


Figure 4. Framework Digital Paradox through Fashion Design

In Figure 3 above, it can be seen that this framework will depart from a culture or tradition that will be raised. The following is a description of the stages of the Framework above; The first stage is Culture Research Analysis. At this stage, identification is carried out on the local culture or tradition that will be raised. In-depth research and supporting literature studies are carried out to see the uniqueness of the culture raised and from which point of view the culture can be raised. Then an exploration of the culture and a study of the customs and values that exist. This stage needs to be considered because it is related to the representation of culture that has become a tradition which includes physical aspects of cultural heritage such as clothing, architecture, or traditional artwork. There are also non-physical aspects such as customs, beliefs and also language, and oral stories (Roy. 2015).

In the second stage, Brainstorm and Ideation were conducted. In this section, brainstorming and conceptualizing ideation based on the results of the Cultural Research Analysis carried out in the previous section. Creating a concept that can appropriately raise or promote a cultural tradition while maintaining the essence of the local cultural tradition. In this Ideation stage, it is also identified the form of product output that will be produced, and what technology implementation is suitable and can accommodate and be suitable for its application.

The third stage is the implementation of technology that is considered appropriate to be able to tell or promote the culture. The selection of the right technology at this stage also needs to take into account what results will be achieved whether in the form of physical products or digital artifacts. At this stage, we will apply the concept of New Value

from Digital Technology, namely Innovation Disruptive and Creative Destructive. The concept of Innovation Disruptive is how a new concept idea disrupts the old concept, but when there is an element of innovation, the new ideas and concepts can be used to introduce a new value idea that is innovative, radical, and far more developed than the previous concept. Furthermore, in Creative Destructive, the creative element at this stage is important. The creative element through design is the main key to Creative Destructive value at this stage (Piliang, 2019). With the right application of digital technology, it can also maximize better opportunities to communicate messages innovatively and have a high aesthetic side. Integrating appropriate technology will provide more contemporary aesthetic, experiential, and interaction opportunities that can create a new paradigm (Chatzichristodoulo et al, 2009).

The fourth stage is Design Development where the Fashion Design Process will be used. The fashion design process includes Design Research, Design collection, Production process (pattern making), and making product prototypes. At this stage, several appropriate design elements are implemented such as; line, proportion, color, material, and image/print (Sinha in Gwilt, 2012). It is also necessary to pay attention to contemporary trends, target markets, and fashion genres (Seivewright, 2007).

The fifth stage is prototyping and testing the prototype. Prototypes are made and tested to be able to determine whether the product produced can be in accordance with the purpose of product creation, to determine how the product is used, and also before the product can later be mass-produced (Isa & Liem, 2014). At this stage, it can also be seen whether there are considerations for product improvement or whether it can accommodate the purpose of creating the product.

The sixth stage is the evaluation stage to see the final results obtained from the prototype and the results of the prototype trial so that conclusions are made about the product. From this conclusion can produce various syntheses of the design process carried out and connected with the purpose of creation whether the results can be in accordance with the objectives or can still be developed or improved for the next. This process is not a closure but a foundation that can also be used for further product development or the possibility of further research.

### 2.3 Application of Framework to Promote the Weaving Culture of Sasak Sade Tribe

This section will describe the application of the framework through fashion design in stages and its application to create the final result in the form of contemporary fashion products that promote the weaving traditions of the Sasak Sade Tribe of Lombok.

The first stage is to conduct a Culture Research Analysis. At this stage, a literature study was conducted about the Sasak Sade Tribe, especially about their weaving culture. Then interviews were conducted with cultural experts of the Sasak Sade tribe. Those informants are the heir of the Sasak Sade Tribe chief, The head of the Sasak Sade tribe Cultural Association, also two artisans weaving as representatives of weaving communities from the Sasak Sade Tribe.



Figure 5. Informants interview process (from left to right: The heir of Sasak Sade Tribe chief - The head of Sasak Sade tribe Cultural Association – Sasak Sade women artisans weaving representatives

Depth interviews were conducted to obtain information from The heir of the Sasak Sade Tribe chief, The head of the Sasak Sade tribe Cultural Association, and two women of Sasak Sade artisans weaving about the history of weaving

culture, meaning, views, and philosophy of weaving culture for the Sasak Sade tribe. They also asked about the weaving process and the meaning and value of their woven fabric products in cultural and social aspects.

From the results of the literature study and interviews, it was found that weaving is a hereditary tradition for Sasak women. The main actors of weaving culture in Sasak Sade village are women. They painstakingly weave exquisite fabrics with basic, age-old tools. In order to create an appealing ikat woven fabric, materials for weaving fabrics are typically found in the nearby area and then prepared independently using a lengthy traditional procedure. Weaving is a skill that must be mastered by Sasak women and all Sasak Sade women must start learning to weave from the age of 10. For the Sasak Sade tribe, weaving is not just a practical activity to make cloth for daily wear but also has its own symbolic value (Nur Alam in Mardiyati & Ismadi, 2016). This process is an integral part of the education and socialization carried out by mothers and grandmothers to their daughters. During this learning process, the values of customs, traditions, and cultural habits inherent in weaving are also taught, shaping the identity and uniqueness of the Sasak Sade tribe. Weaving culture also reflects the social system of the Sasak people. In this community, weaving plays an important role in marriage and the achievement of maturity. A woman is considered not ready for marriage if she is not proficient in weaving. Therefore, the ability to weave becomes more than just a skill, but also a measure of a woman's readiness to enter a new phase in her life.

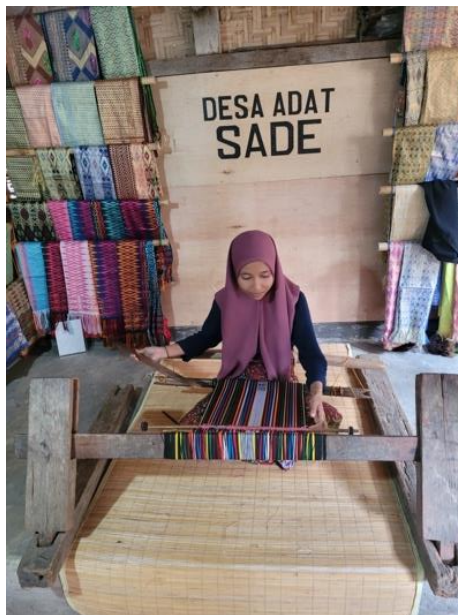


Figure 6. Weaving culture of Sasak Sade tribe women

Weaving also plays a role in maintaining and preserving the cultural identity of the Sasak tribe. The fabrics produced from weaving have distinctive motifs and designs that come from the traditions of their ancestors. Based on the results of interviews with cultural experts and Sasak Sade weavers, they have several distinctive motifs. The typical motifs of the Sade village are more geometric motifs such as lines, or plaid. Weaving also serves as a form of preserving history and valuable stories for the Sade community. The weaving tradition remains a steadfast part of the Sasak Sade tribe's life. The women continue to teach this skill to the next generation, keeping their culture and local wisdom alive and thriving. More than just an art form, weaving is a symbol of cultural resilience and a link between the past, present, and future of the Sasak Sade people. Therefore, this research aims to promote the beauty of the weaving tradition in the form of contemporary fashion with a technological image.

The second stage is concept and ideation. The concept of creation is an interactive fashion with a technological image that raises elements of local tradition or culture, namely the weaving culture of the Sasak Sade tribe. The creation of this fashion will have an interactive aspect, which is realized with the implementation of technology. Clothing is considered to be one of the artifacts that can express and communicate stimuli from the dimensions of cultural and historical experience through the five senses, therefore in clothing with the implementation of this technology, interactivity is a manifestation of the cultural message to be conveyed. Interactive clothing contains the potential as a link between the past and the future, as a medium of reality and virtual, so that in this creation interactive clothing

can be an active mediator and not just a container. Through this fashion, the weaving culture of the Sasak Sade tribe, which has beauty, meaning, and philosophy, can be mediated in a form that is more fashionable, contemporary, and contains elements of tradition-future.

The third stage is the technology selection stage. At this stage, Augmented Reality (AR) technology is used because AR can unite virtual reality with the real world (Tabusca, 2014). Because the form of the product created is contemporary fashion. Then the idea of the body as a tool and technological media will be used as an extension through the implementation of AR. Digital content about culture is displayed through the body of the fashion wearer. Where the environment and the audience who see it can interact through the display of the projected virtual environment so that there is interaction between humans and the hybrid ecosystem that appears through AR.

AR means the fusion of real-life objects and facts with virtual reality. AR generally uses two different approaches to realize this fusion: marker-based responses in the form of images that will be recognized by special detection devices. In this case, the image recognition will be connected through the device positioning system via 3G/4G/5G cellular data network or via Wi-Fi to match a specific location that is connected to the filter on social media 'Instagram' and display information or promotion about the weaving culture of the Sasak Sade tribe. This information or promotion is arranged to lead to the display through the social media filter 'Instagram' because the target market of the younger generation who are tech-savvy and close to social media, it is hoped that with the application of this interactive filter, it will be easy to capture and distribute to networks and contacts that exist on social media users or audiences.

Next is the process of making surface design illustrations that will later become part of this fashion design and will also function as markers in AR projections. The selected design illustration will be adapted into a virtual object. So that the design displayed must be able to represent the culture raised, namely the Sasak Sade tribe weaving culture. The following is the process of developing and creating sketches and alternative illustrations of weaving culture where the literacy data obtained is applied in several choices of illustration adaptations.

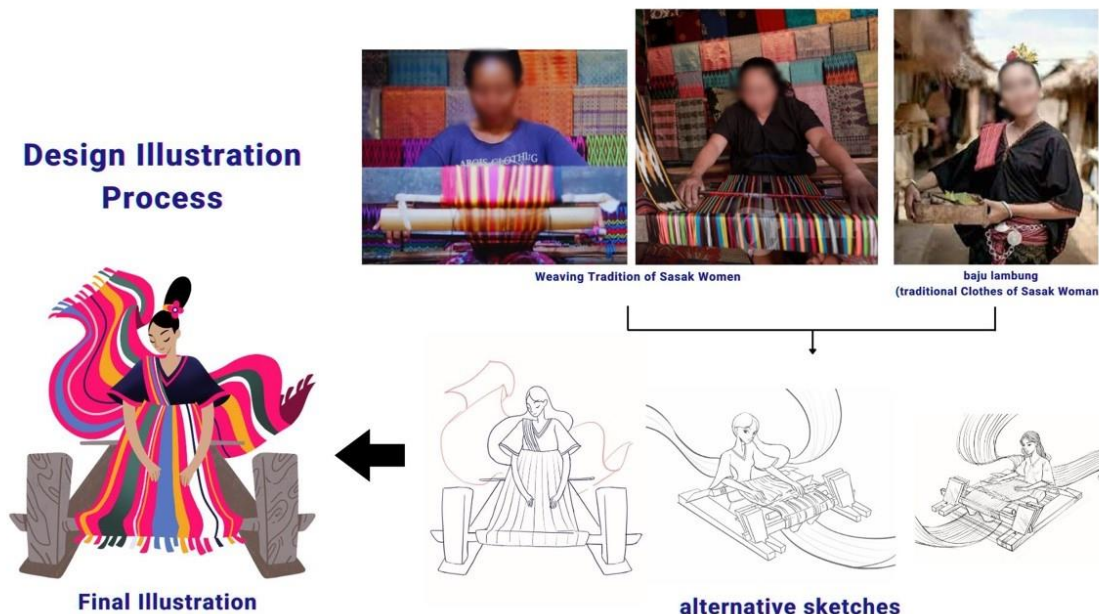


Figure 7. Design Illustration Process of Sasak Sade woman weaving tradition

Figure 5 above shows the process of creation and adaptation of the figure of a weaver woman in the Sasak Sade Tribe. Several alternative sketches were made. The visual form of the woman wears 'Baju Lambung' which is the traditional clothes of Sasak women, the black color is also a characteristic of baju lambung, and wears a woven shawl that dangles on the shoulder. In the illustration sketches made, the ones chosen are those that use cleaner, neater, and simpler strokes. From the final illustration, the image of the weaving woman will be made into an animation using 2D spine software and applied as a marker on Meta Spark AR to be projected in the form of virtual reality which when the marker image is recognized will detect and connect with the existing network, and connect to the user's social media. AR in this creation will appear when triggered through illustrations contained in clothing and will

manifest an interactive picture that can be enjoyed by the audience. The virtual object that appears is an animation of Sasak Sade women who are weaving, added with the sound effect of the Sesek loom they use. Each swing of this tool gives an impression to the listener so that they can feel a closer experience with this weaver through the virtual object display. Added typical music from the Sasak tribe and narration to introduce and promote this weaving busaya, so that this information can be forwarded through the AR filter display through the user's social media. The AR technology displayed will give the impression of mixing the virtual world with the real world because it will present the appearance of virtual objects in the real world, this is what causes blurring between the virtual world and the real world, and produces a hybrid ecosystem (mixed environment) that will stimulate the human senses through sight, sound, and interactivity.

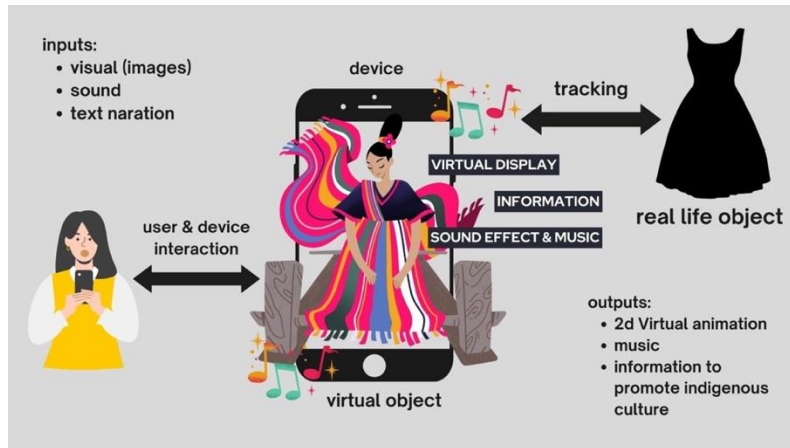


Figure 8. Interaction process

From Figure 6 about the interaction picture shown above, it can be seen that there is an implementation of the new value of technology, namely creative destructive and innovative disruptive. AR technology is used through a creative process to elevate the local culture of Sasak Sade tribal weaving through the creation of contemporary clothing, bringing this cultural tradition into a virtual reality element that blurs the boundaries of the real and virtual worlds and brings the wearer and his audience to an immersive and interactive dimension.

Stage Four is the design development process in the fashion design process. The target market of this product is young people who are energetic, tech-savvy, and creative. The fashion design applies illustrations as the point of interest, using a combination of navy blue and bold magenta colors. The fashion form uses a crop top and a combination of a puffy mid-length skirt to give a young impression and a little feminine touch.



Figure 9. Fashion design details & flat drawings on this creation

The picture in Figure 7 shows the illustration of weaving also used as a design element that is used as a print on clothing and adds elements of unraveling threads to add the impression of the description of the weaver woman's thread in the illustration. Besides that, the unraveled threads also imply the woven fabric as a lifeline for the Sasak Sade tribe who make woven fabrics as one of their daily sources of income.

The fifth stage is the prototype and test stage. At this stage, the clothes produced are tried on the intended target market to test the effectiveness of applying AR technology in promoting the Sasak Sade tribe's weaving culture as well as seeing whether it has appeal in terms of fashion design application.



Figure 10. Prototype view

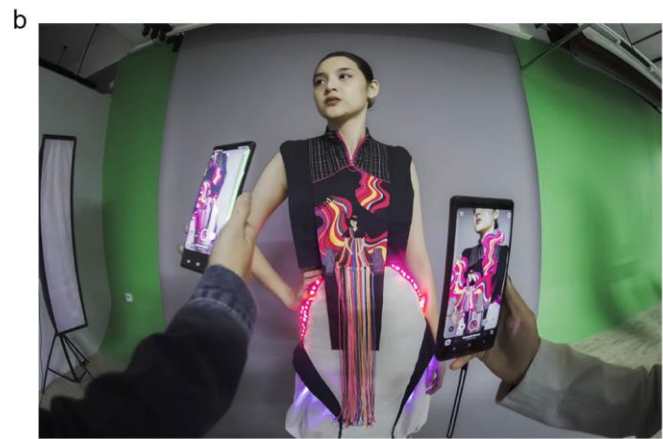


Figure 11. Test AR dan gain feedback dari target market

Figure 8 is the prototype view taken from various sides. While Figure 9 is a test conducted on the target market, namely the tech-savvy young generation. The results of the prototype and AR test were tested on 10 target market people. From a total of 10 respondents who tried it, most of them thought that this product was very interesting and interactive. Most of them who have never known the culture of the Sasak Sade Tribe before feel interested in finding out more about the Sasak Sade Tribe and its uniqueness, some of them even want to try to visit Sade Hamlet Village directly to see the culture firsthand. Some suggested a continuation of this research into a fashion collection featuring the various cultures of the Sasak Sade Tribe because it will definitely be able to further promote the diverse cultures of the Sasak Sade Tribe.

The sixth stage is the evaluation stage of the creative process that has been carried out. The evaluation is taken by considering the input and opinions obtained from respondents who are the target market. Overall, the process of data collection and culture analysis has been able to accommodate the culture raised. Then the ideation to the implementation of technology to instill new value from digital technology through the creative process of making interactive clothing with AR has been able to communicate and promote the weaving culture of the Sasak Sade Tribe well. So if you look at the implementation of the framework created, the objectives of this research have been achieved and have the possibility to be developed further.

### 3. Conclusion

This research departs by raising the issue that technology is often blamed for the loss of local culture and tradition, where it turns out that technology has a paradoxical nature that can be used to preserve and promote a culture, where the example of local culture raised is the weaving culture of the Sasak Sade Tribe of Lombok. It can be seen that through this research, the weaving culture of the Sasak Sade Tribe through the creation of contemporary clothing with AR technology can be used to communicate messages and knowledge about the local culture of weaving in the Sasak Sade Tribe. By using a framework that utilizes the paradoxical nature of digital technology in the implementation of AR, and creative elements in the design process to produce technology-imaged contemporary clothing that promotes the typical weaving tradition of the Sasak Sade Tribe of Lombok with interactive and visual elements generated from AR technology. Through the Digital Paradox approach that combines innovative disruptive and creative destructive aspects, this contemporary fashion outfit can convey messages and promote the local wisdom of Sasak Sade weaving.

The results of the implementation of this framework show that contemporary fashion with AR provides a unique and immersive experience for users. Users can feel the beauty and cultural values of weaving promoted through AR technology, thus creating a higher appreciation for the original culture of the Sasak Sade Tribe. In addition, this fashion design also succeeds in creating awareness of the importance of preserving local traditions and culture, as well as opening up economic opportunities for the Sasak Sade Tribe community in the fashion industry.

As an additional finding, this study accomplishes a well-balanced synthesis of theoretical nuance and real-world application, which serves as the foundation for the framework. The framework navigates the complexities of cultural preservation, communication through fashion, and the transformative power of technology, all of which converge to breathe new life into the cultural heritage of the Sasak Sade tribe. This framework, with its nuanced understanding and innovative approach, not only contributes to academic discourse but also serves as a beacon for future initiatives that seek to marry tradition with the possibilities of the digital age.

The limitations of this research are that the culture raised is still limited to only one culture in Sasak Sade Lombok, so it is still possible for further research to explore various other local wisdom of the Sasak Sade Tribe which also needs to be promoted. There can also be a study on the creative adaptation of AR technology to be used in preserving culture so that technology can be maximally utilized in efforts to preserve cultural heritage that is threatened by globalization and modernization. Overall, this research can make a positive contribution in combining AR technology with the original cultural elements of the Sasak Sade Tribe in the form of interactive contemporary clothing. In addition, through the Digital Paradox approach, the contemporary fashion produced succeeded in creating a harmonious relationship between technological innovation and local wisdom, which is expected to encourage more appreciation and preservation of the valuable weaving culture. So that there will be more research and similar initiatives so that various Indonesian local cultures and other local traditions can continue to be appreciated, promoted, and preserved for future generations.

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**Ethics approval:**

All subjects gave their informed consent for inclusion before they participated in the study. The protocol of this study was approved by the Ethics Committee School of Creative Industry Universitas Ciputra Surabaya No. 037/UC-SCI/Skel/XI/2023.

**Conflict of interest:**

The authors declare that there is no competing interest.

**References**

- Alizadehsalehi, S., Hadavi, A., & Huang, J. C. (2020). From BIM to extended reality in AEC industry. *Automation in Construction*, 116, 103254
- Azima, N. S., Furnamasari, Y. F., & Dewi, D. A. (2021). Pengaruh Masuknya Budaya Asing Terhadap Nasionalisme Bangsa Indonesia di Era Globalisasi. *Jurnal Pendidikan Tambusai*, 5(3), 7491-7496.
- Appadurai, A. (2013). The future as cultural fact: Essays on the global condition. *Rassegna Italiana di sociologia*, 14(4), 649-650. (book)
- Budiwanti, E. (2000). Islam Sasak; Wetu Telu versus Waktu Lima. Lkis pelangi aksara.
- Bahrudin, B., Masrukhi, M., & Atmaja, H. T. (2017). Pergeseran Budaya Lokal Remaja Suku Tengger di Desa Argosari Kecamatan Senduro Kabupaten Lumajang. *JESS (Journal of Educational Social Studies)*, 6(1), 20-28.
- Barnard, M. (2020). Fashion as communication revisited. *Popular Communication*, 18(4), 259-271.
- Bhangu, S., Provost, F., & Caduff, C. (2023). Introduction to qualitative research methods—Part I. *Perspectives in Clinical Research*, 14(1), 39.
- Business of Fashion (BOF) & McKinsey Company (2022). *The State of Fashion Technology*.
- Boardman, R., Henninger, C. E., & Zhu, A. (2020). Augmented reality and virtual reality: new drivers for fashion retail?. *Technology-Driven Sustainability: Innovation in the Fashion Supply Chain*, 155-172.
- Combi, M. (2016). Cultures and technology: An analysis of some of the changes in progress—Digital, global and local culture. *Cultural heritage in a changing world*, 3-15.
- Diamandis, Peter. H. & Kotler, S (2020). *The Future is Faster than You Think: How Converging Technologies are Transforming Business, Industries, and Our Lives*. Simon & Schuster Book. New York.
- Deniz, Deniz. "The Importance of Digitalization for Sustaining Cultural Environments in Resilient Cities." *Environmental Science & Sustainable Development* 8, no. 1 (2023): 01-09.

- Gwilt, A. (2012). Integrating sustainable strategies in the fashion design process: A conceptual model of the fashion designer in haute couture (Doctoral dissertation, RMIT University).
- Gondoputranto, O., & Dibia, I. W. (2022). The Use of Technology in Capturing Various Traditional Motifs and Ornaments: A Case Study of Batik Fractal, Indonesia and TUDITA-Turkish Digital Textile Archive. *Humaniora*, 13(1), 39-48.
- Giacomin, J. (2014) "What is human centred design?" *The Design Journal* 17, no. 4 (2014): 606-623.
- Housley, Sara & WGSN Consumer Tech (2022). "Big Idea of 2024 – Consumer Tech."
- Isa, S. S., & Liem, A. (2014). Classifying physical models and prototypes in the design process: A study on the economical and usability impact of adopting models and prototypes in the design process. In *DS 77: Proceedings of the DESIGN 2014 13th International Design Conference*.
- Kaelan. (2005). *Metode Penelitian Kualitatif bidang Filsafat*. Jogjakarta: Paradigma.
- Logaldo, M. (2016). Augmented bodies: Functional and rhetorical uses of augmented reality in fashion. *Pólemos*, 10(1), 125-141.
- Mardiyati & Ismadi (2016) *Kain Tenun Tradisional Dusun Sade, Rembitan, Pujut, Lombok Tengah, Nusa Tenggara Barat*. Yogyakarta. UNY. Lumbung Pustaka Universitas Negeri Yogyakarta.
- Markussen, Thomas, and Peter Gall Krogh (2008). "Mapping cultural frame shifting in interaction design with blending theory." *International Journal of Design* 2, no. 2 (2008): 5-17.
- Mubah, A. S. (2011). Strategi meningkatkan daya tahan budaya lokal dalam menghadapi arus globalisasi. *Jurnal Unair*, 24(4), 302-308.
- Mulyana, D. (2013). *Metode Penelitian Komunikasi: Contoh-Contoh Penelitian Kualitatif Dengan Pendekatan Praktis*. PT Remaja Rosdakarya: Bandung.
- Nguyen, H & Bednarz, T (2020). User Experience in Collaborative Extended Reality: Overview Study. Springer Link International Conference on Virtual Reality and Augmented Reality. Part of the Lecture Notes in Computer Science book series (LNIP), Vol. 12499, 2020. DOI: 10.1007/978-3-030-62655-6\_3
- Nurmeisarah, T., Sudirtha, I. G., & Angendari, M. D. (2015). Tinjauan Tentang Tenun Tradisional Dusun Sade Desa Rambitan Kecamatan Pujut Kabupaten Lombok Tengah. *Jurnal BOSAPARIS: Pendidikan Kesejahteraan Keluarga*, 3(1).
- Pietroni, E., & Adami, A. (2014). Interacting with virtual reconstructions in museums: The Etruscanning Project. *Journal on Computing and Cultural Heritage (JOCCH)*, 7(2), 1-29.
- Pedersen, I., Gale, N., Mirza-Babaei, P., & Reid, S. (2017). More than meets the eye: The benefits of augmented reality and holographic displays for digital cultural heritage. *Journal on Computing and Cultural Heritage (JOCCH)*, 10(2), 1-15.
- Purnomo, A. (2021). Teori Kewirausahaan Destruksi Kreatif: Penghancuran Cara Lama untuk Jalan Baru. <https://doi.org/10.31219/osf.io/fh7nv>
- Piliang, Y. A. (2019, February). Seni, Desain dan Kebudayaan dalam Spirit Revolusi Industri 4.0. In *SENADA (Seminar Nasional Manajemen, Desain dan Aplikasi Bisnis Teknologi)* (Vol. 2, pp. 1-9).
- Roxo, M. T., & Brito, P. Q. (2020). Augmented reality: what motivates late millennials towards fashion mobile apps?. In *Enlightened Marketing in Challenging Times: Proceedings of the 2019 AMS World Marketing Congress (WMC) 22* (pp. 315-327). Springer International Publishing.
- Roy, L. (2015). Indigenous cultural heritage preservation: A review essay with ideas for the future. *IFLA journal*, 41(3), 192-203.
- Ruxton, C. (2016). Tea: Hydration and other health benefits. *Primary Health Care*, 26(8), 34-42. <https://doi.org/10.7748/phc.2016.e1162>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104, 333-339.
- Seivewright, S. (2012). *Basics fashion design 01: Research and design* (Vol. 1). A&C Black.
- Sugiyono (2021). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta.
- Tabusca, A. (2014). Augmented Reality - Need, Opportunity or Fashion. *Journal of Information Systems & Operations Management*, 1.