

# INTEGRATING SIDOARJO CULTURAL HERITAGE PRESERVATION INTO SCIENCE TECHNO PARK GOVERNANCE

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**Abstract:** This paper presents an innovative approach to economic development by integrating cultural heritage preservation with Science Techno Park (STP) governance. The objective is to empower SMEs and boost economic growth in Sidoarjo. By using Sidoarjo's cultural heritage, this research aims to advance knowledge in economic development, creative industry promotion, and cultural heritage preservation. The researchers employ descriptive qualitative research methods to investigate the potential integration of cultural heritage narratives into SMEs' branding strategies. This integration is hypothesized to enhance the competitiveness of SMEs, promote regional tourism, and contribute to the local economy. Data will be collected through field observations and purposive in-depth interviews with experts selected, including the SME actors, the representatives from the Education Office, the Tourism Office, and Sidoarjo Arts Council (Dekesda). Through the STP, relevant parties collaborated to investigate the relics of Kahuripan Airlangga as evidence of cultural significance, as evidenced by the Kamalagyan inscription in the Krian sub-district. These findings present that Sidoarjo can fully use the potential of the STP to stimulate economic growth and foster a thriving creative industry ecosystem by integrating cultural heritage preservation. The cultural art events of STP are the idea assistance of Kahuripan-characterized arts and the promotion assistance of Udeng Pacul Gowang, the events of Wayang Gagrang Porongan, Tembang Mocapat Kahuripan Airlangga, and the Bandeng Asap Festival. These programs are governed collaboratively.

**Keywords:** Cultural heritage, Collaborative governance, Science Techno Park, Sidoarjo

## 1. INTRODUCTION

Sidoarjo, a region with a rich cultural heritage, faces challenges balancing economic growth and preservation. The emergence of Science Techno Parks (STPs) presents opportunities and challenges, but their effectiveness in integrating cultural heritage preservation into governance frameworks remains unexplored. This gap in knowledge hinders the potential of STPs to empower SMEs and drive economic growth in culturally rich regions.

Moreover, existing literature primarily focuses on the role of STPs in fostering technological innovation and entrepreneurship, overlooking the potential integration between STPs and cultural heritage preservation initiatives. This oversight underscores the need for innovative approaches that bridge the gap between cultural heritage preservation, economic development, and STP governance.

In Asia, STPs have experienced rapid development in recent decades to upgrade production, promote research and innovation, and climb global value chains (UN ESCAP, 2019). Also, in Indonesia, there is Presidential Regulation Number 106 of 2017, which consists of two implementing regulations that refer to the national master plan for STP development in 2015-2030 and the governance of STP implementation. These regulations are issued by the Ministry

of Research, Technology and Higher Education Indonesia (Kemenristekdikti), and these can be guidance for every ministry, non-ministerial government agency, local governments, businesses, universities, and communities in establishing and managing STP in Indonesia (Presiden RI, 2017).

At the city level, STP has the function of being (1) a center for the application of technology in the creative economy and other services that have been proposed by research institutions, the private sector, and universities to be implemented on an economic scale, and (2) a place for training, apprenticeship, center technology dissemination, and business advocacy center to the broader community (Triastuti et al., 2023). In this case, the Sidoarjo local government has fully supported the Sidoarjo Art Council (Dekesda) in organizing cultural art events that exemplify local wisdom to ensure the preservation of Sidoarjo cultural art heritage. Cultural art events are expected to improve Sidoarjo's branding as a cultural art-based tourism destination and automatically increase economic growth. Sidoarjo Science Techno Park (SSTP) mainly organizes business incubation and business acceleration in implementing coaching and development of technology-based SMEs and mentoring art ideas characterized by Kahuripan Airlangga.

The Kahuripan Kingdom was a significant kingdom on Java Island in the 10th century AD, under the leadership of King Airlangga (thus, it is known as Kahuripan Airlangga). It was located in Sidoarjo. The historical narrative is preserved in the Kamalagyan inscription, which remains intact and is currently located in the Krian sub-district. Sidoarjo has a rich artistic and cultural heritage, reflected in its diverse folklore and village characteristics. Three characteristics of the village can be identified: agricultural, business, and religious. These characteristics have persisted since the Kahuripan Airlangga, Majapahit, and Islamic periods and continue to be evident in the present (Susilo et al., 2020). The story of Sidoarjo citizens and their inheritance of King Airlangga's charismatic leadership style potentially represents a high-quality artistic expression through folklore, marketing, and technology studies. Art and cultural history research encompasses both oral literature and written inscriptions. These will be presented in six fields of art: literature, dance, music, theater, film, and visual arts. Local wisdom in Reog Cemandi, Wayang Gagrang Porongan, Macapat, and Kahuripan narratives in the form of community knowledge to develop and create works in the creative economy sectors. This effort will increase the income of artists and the general public (Pebrianggara et al., 2021).

By incorporating traditional knowledge, artistic expressions, and historical narratives into contemporary products and services, creative industries contribute to economic diversification and serve as custodians of cultural heritage (Hesmondhalgh & Pratt, 2005). Concurrently, STPs have emerged as strategic platforms for fostering innovation, entrepreneurship, and technological advancement. By providing infrastructure, mentorship, and networking opportunities, STPs facilitate the translation of research into marketable products and services, thereby stimulating economic development (Carayannis & Campbell, 2011). Integrating cultural heritage preservation initiatives into the governance framework of STPs offers a promising avenue for harnessing the economic potential of cultural heritage while fostering innovation and entrepreneurship within creative industries. This study explores the cultural heritage preservation effort to empower the branding of Sidoarjo as a city of creative industries by holding cultural art events and empowering SMEs through Sidoarjo Science Techno Park. The research questions formulated as follows:

1. How can Science Techno Park effectively integrate cultural heritage preservation initiatives and creative industries?
2. What are the effective governance strategies of Sidoarjo Science Techno Park to escalate SME branding and local economic growth?

## 2. LITERATURE REVIEW

### a. The Significance of Cultural Heritage Preservation

Cultural heritage preservation is a cornerstone for identity formation and community cohesion (Smith, 2006). Studies emphasize its role in maintaining historical narratives and traditions, contributing to a sense of place and belonging (Cerisola & Panzera, 2021). For example, the history of wayang development is conceptually a combination of several cultural elements that entered Indonesia (Java Island), namely Indian culture with Hindu-Buddhist religion and Islam with its Sufism. Indicators of changes in the function of wayang in society are pakeliran changes in wayang as an industry to fulfill the entertainment market. Changes in ritual function can be seen from fading guidance or moral values in wayang, so wayang only has an entertainment or spectacle function and is a famous performance (Awalin, 2018). Second, a heroic event occurred in Tambak Kalisogo, where the local population resisted the Dutch colonizers through Silat Jawisogo. This event was depicted through a Wayang Sarip performance, which was subsequently developed into Wayang Silat Jawisogo. The activity process begins with three stages: (1) enhancing literacy about the historical narrative of the Tambak Kalisogo resistance, (2) collaborating with children and adolescents to develop the character of Wayang Silat Jawisogo, and (3) rehearsing Wayang Silat Jawisogo performances (Susilo et al., 2020). Third, the moral message of the 11 kinds of Macapat songs, including Maskumambang, Mijil, Sinom, Kinanthi, Asamarandana, Gambuh, Dhandanggula, Durma, Pangkur, Megatruh, and Pocung, can be understood as a representation of the stages of human life, from the womb to the end of life (death). The conclusion is that the meaning behind the Macapat song is a reminder of one's awareness of one's origin and applies to becoming an actual human being who always includes God in every step (Putri et al., 2023).

The three studies demonstrate that incorporating cultural heritage in the form of historical narratives and traditions into contemporary products and services can enhance a sense of belonging to community knowledge, contribute to creative industries through economic diversification, and serve as custodians of cultural heritage. It aligns with a study by Caves (2000) that leveraging cultural heritage can provide unique narratives and aesthetics in creative industry development to enhance product and service appeal and authenticity. The significance of cultural heritage preservation is a crucial point often overlooked. There is a notable lack of clarity regarding the most effective means of integrating this concept into contemporary economic development strategies, particularly in the context of SME empowerment and Science Techno Park (STP) initiatives.

Hence, Triastuti et al. (2023) found that using local resources to produce creative products with distinctiveness can enable their competitiveness in regional and global markets. Also, creating innovative products and services with economic value has several positive impacts, such as the nation's image and identity, like tourism, national icons, building culture, cultural heritage, and local values, and improving the quality of life and social quality. It aligns with the findings that art and cultural centers are required in every region of Indonesia. These facilities serve as a venue for local arts and culture, which has been demonstrated to significantly impact young people and artists, inspiring them to embrace art and culture. It also serves as an educational institution and gathering place for artists, facilitating the preservation of art and culture (Amalia & Agustin, 2022).

Besides that, there are some development strategies for the creative industry to maintain its core business. (Callula et al., 2022) stated that an IT-based strategy is required to introduce, socialize, and promote the *ondel-ondel* culture while maintaining the local culture with a strong community identity. Additionally, the mix promotion carried out by the Banyuwangi Regency Culture and Tourism Office positively impacted tourist visits but has not been effective yet. Therefore, the Culture and Tourism Office in Banyuwangi is better for

conducting tourism and English language training, expanding the Tourist Information Center, and connecting with other stakeholders (Avinda et al., 2016). It further reinforces that the creative economy is essential in driving innovation and new product development, contributing to local economic growth. In the long run, the sector also creates significant employment. The sector's success in fostering individual creativity impacts regional economies (Mere et al., 2023). These findings also encourage researchers to investigate the potential of cultural narratives in the function of science and technology parks in developing SMEs and fostering sustainable economic growth through the development and application of science and technology and the growth of technology-based start-up companies.

#### **b. The Key Governance of Science Techno Parks**

In light of innovation's pivotal role in enhancing regional competitiveness, Science Techno Parks (STPs) are critical in fostering innovation, entrepreneurship, and economic growth. Effective governance of STPs entails implementing various strategies and theoretical frameworks designed to optimize their operations and impact. The following section presents a selection of crucial governance strategies and their associated theoretical frameworks:

Collaborative governance theory emphasizes the importance of cooperation between public, private, and academic sectors to achieve common goals. Implementing networks among universities, research institutions, industry, and government facilitates knowledge transfer, resource sharing, and joint ventures, aligning with (Mustafa et al., 2020) study on optimizing STP for SME development.

Etzkowitz and Leydesdorff's Triple Helix Model emphasizes the interplay between university, industry, and government sectors for innovation and economic development, promoting the commercialization of academic research (Etzkowitz & Leydesdorff, 2000). Moreover, Cluster development involves creating interconnected companies, specialized suppliers, and institutions in specific sectors like biotechnology, IT, or renewable energy, enhancing integration and competitiveness through tailored infrastructure and services (Porter, 1990).

Incubation and acceleration programs provide start-ups with the necessary support, including mentorship, capital access, and networking opportunities. These programs align with Colombo and Piva's (2012) argument that STPs offer infrastructure, mentorship, and networking opportunities.

In addition, Sustainable Development and Green Innovation emphasize the integration of environmental considerations into economic activities. STPs should promote energy-efficient buildings, renewable energy research, and eco-friendly practices. Government policies and regulatory support can impact innovation and business growth. The Innovation Ecosystem Approach focuses on interconnected factors like institutions, policies, human capital, and culture, creating a holistic ecosystem for innovation.

These strategies help guide the effective governance of STPs, ensuring they can fulfill their roles as hubs of innovation and drivers of economic growth. However, while the potential of STPs in driving economic growth through SME development is well-documented, there is limited research on their integration with cultural heritage preservation efforts to enhance SME branding and financial impact. Therefore, the Sidoarjo local government wholeheartedly supports Dekesda in organizing cultural art events that exemplify local wisdom to preserve Sidoarjo's cultural art heritage. The Sidoarjo citizens possess at least four local wisdom, including the Nyadran tradition, the Lelang Bandeng tradition, the Jetis batik motif, and the legend of the Pari temple. Local wisdom plays a crucial role in attracting foreign visitors, fostering tolerance within the local population, and encouraging cultural innovation, thus contributing to the city's cultural offerings and overall cultural development (Sugiantoro et al.,

2022). Cultural art events are expected to improve Sidoarjo's branding as a city of creative industries and a cultural art-based tourism destination, automatically increasing economic growth.

### 3. METHODOLOGY

Qualitative research is a method for understanding and constructing a comprehensive picture of a social or human problem (Cresswell, 2014). It involves exploring integrating cultural heritage preservation efforts and local economic growth in the context of cultural tourism in Sidoarjo. The research location is Sidoarjo City. The respondents were selected based on the purposive sampling technique, which is to select respondents to obtain data sources based on individuals who are considered to know the most about the subject matter under study. The Sidoarjo Arts Council, the institution responsible for fostering and developing cultural arts in Sidoarjo, is the main subject of this research. It was conducted under the coordination of the Sidoarjo District Education and Culture Office. Data were collected from a checklist of activities to be observed. The researchers then proceeded to observe the activities carried out by Dekesda, with a particular focus on those related to the development of Kahuripan Airlangga Sidoarjo culture. Based on the results of these observations, the researchers determined which subjects to interview to confirm the data and strengthen the data obtained. The interview instruments were adopted from Putra (2019). Once the data had been obtained, the researchers proceeded to select the data that would be processed following the formulation of the problem. Subsequently, the data about the exploration of Sidoarjo's cultural arts are subjected to analysis and discussion, serving as a representation of the outcomes.

### 4. FINDINGS AND DISCUSSION

#### a. Exploring The Role of STP in Integrating Cultural Heritage Preservation and Creative Industry Development

The observations and interviews with representatives of the relevant institutions and SME actors indicate that the STP has resulted in the emergence of innovative arts and culture-based activities. It includes initiatives such as idea assistance and business promotion assistance and implementing cultural events to improve the city's brand for tourism purposes. It, in turn, has the potential to positively affect the local economy of Sidoarjo. Here is the explanation for each initiative:

##### 1) *The Idea Assistance of Kahuripan Airlangga-characterized Arts*

Dekesda promotes arts and culture in Sidoarjo by forming seven arts committees and four organizational areas. The seven committees include dance, music, film, literature, tradition, theatre, and fine arts committees. The organizational fields include culture, creative economy, R&D, and public relations. The dance committee's activities include mentoring studios, providing dance training, preserving traditional dance, and encouraging new dance creations, especially those related to the history and culture of Sidoarjo. Some of the dances that have been preserved and developed include *remo munali patah*, *Banjar kemuning*, *Kupang enjoy*, and others.

Drama dances have also been created: "Sejarah Alas Tarik" (History of Alas Tarik) was performed at the Sidoarjo Regency Hall in 2022 and tells the story of the founding of Majapahit in the Tarik region. Based on two historians' statements, it was created that Majapahit was founded in Tarik sub-district, Sidoarjo. The new dance created in 2023 is Patrol Kahuripan, performed at the Sidoarjo Regency Hall in November 2023 (as in Figure 1). Patrol Kahuripan dance was inspired by the history of the Kahuripan kingdom, a great kingdom that once stood

in Sidoarjo with King Airlangga. This dance was also created with the support of the BIMA 2023 community service team: UMSIDA-UNHASA.



**Figure 1. The Dance of Patrol Kahuripan**

The Film Committee supports the Sidoarjo Film Association (ASFIS). One example of a product related to Sidoarjo culture is a documentary film about puppets that tells the history of the Terung Palace of Sidoarjo in 2022. The Film Committee also provided film-making training to schools in 2023, which is ongoing. Literature Committee: *Urai Tanah* (exploring the history of Sidoarjo into literary works). Literary discussions for the creative process and publication of works. Poetry musicalization by Sidoarjo poets. Traditional arts committee: *Macapat Gagrag Porongan* competition, *Tembang Macapat* with the Javanese cultural association.

## 2) Organizing Art Performances: Wayang Gagrag Porongan

*Wayang Kulit Gagrag Porongan* has been around for a long time, but it is unknown how it was initially performed. Based on an interview with the puppeteer, Ki Didik Iswandi, *Wayang Kulit Jekdong* was created by Kanjeng Jimat. Kanjeng Djimad Djokomono (R.T.A.A Tjokronegoro II) was the second regent of Sidoarjo in 1863. In the beginning, *gendhing gandakusuma* was a special accompaniment to *wayang kulit porongan*. The *gendhing* (or rhythm) to accompany wayang performances in East Java is called *ayak*. *Ayak* is synonymous with religious plays. Other gendhings are *cakraningrat*, *gambuh*, and *sinom*. *Wayang Kulit Gagrag Porongan* has a sequence of tones (pathet): pathet-10, pathet-8, pathet-9, and pathet serang. Pathet-10 uses gendhing ayak-10. When entering pathet-8, *gondokusumo* is used. Meanwhile, Pathet 9 (*nyura*) used *mumukus* and *gunung sari*. Pathet serang does not use gendhing, but it uses *suluk*.



**Figure 2. The Poster of Ki Didik Iswandi who will perform Wayag Gagrag Porongan**

Ki Hasan Yulianto performs *Wayang Gagrag Porongan* with the play “Semar Mbangun Jiwo.” The narrative begins with the Queen of Ngastina, Joko Pitono, who is troubled by the whispers of her little heart. He is aware that the royal throne he sits on is the throne for Puntodewo. Joko Pitono only acts as a temporary ruler as king until the time is handed over to Puntodewo, but he feels unwilling if the throne is given to Puntodewo. Joko Pitono asked Resi Drona why he and his brothers were unfit to rule the country. Resi Drona replied that Joko Pitono and his brothers could not be good kings because they did not follow the instructions of their teacher’s teachings and were lazy. Resi Drona gave one case of offense when Durmogati, Joko Pitono’s younger brother, was told to learn *kanuragan*. Durmogati deviated by going to seduce Resi Drona’s wife.

The second part tells of the descent of a God from Kayangan, Batoro Guru. Batoro Guru meets Joko Pitono, and he orders Joko Pitono and his brothers to attack the village of Klampis Ireng, where Semar lives. Batoro Guru was annoyed with the activities of the village chief of Klampis Ireng, Semar. Semar performed the *ruwatan mbangun jiwa* activity. This is a soul-cleansing activity, a fasting ritual for the people of Klampis Ireng. Batoro Guru felt hot when the people of Klampis Ireng had their souls cleansed. Joko Pitono ordered his follower Begawan Cidrokusumo to thwart the *ruwatan* activities in Kalmpis Ireng. When Begawan Cidrokusumo directed his magic to Klampis Ireng, a strange force suddenly appeared that caused him to become an ugly giant.

The most recent role of the Sidoarjo district government in 2024 was to issue a letter of appeal to all village heads in Sidoarjo to perform *Wayang Kulit Gagrag Porongan* in the month of Ruwah. The second role of the government is to provide funding support of 600 million to organize 12 performances of wayang gagrag porongan, meaning that one performance is funded with 50 million. The two roles of the Sidoarjo district government were decided after the chairman of Dekesda and the puppeteers of *Wayang Kulit Gagrag Porongan* requested an audience with the Sidoarjo Regent.

Sari and Perguna (2020) found that Wayang Suket has become a popular millennial pastime. The Suket’s contribution to the interests of millennials and modifying the art form. In contrast, the continued existence of the art form. These include a lack of communication and key issues. language used by the artists, and its perceived incompatibility with the digital age. puppeteer, the performance times and its as a performance art form, and its shown how practical individual (i, 2022). It is



**Figure 3. Seribu Warga Sidoarjo performed Nembang Macapat**

Several associations, such as Jenggala Manik and Sekar Kawedar, conduct macapat activities monthly. Some schools take part in macapat competitions organized by Dekesda. Tembang macapat has 16 character values, but the number of character distributions is different for each song. In this case, *pocung*, *mijil*, *pangkur*, and *kinanthi* are the songs with character values that dominate compared to other songs. The character values are honesty, discipline, respect, confidence, and tolerance (Ratnasari & Adiwijaya, 2023).

The Ministry of Education and Culture has invited all macapat societies to its office several times to perform tembang macapat together. Schools are urged to participate in the *1000 Warga Sidoarjo Nembang Macapat* (A thousand Sidoarjo citizens performed Nembang Macapat) event organized by Dekesda in collaboration with BIMA: UMSIDA-UNHASSY and the Macapat Societies (as in Figure 3).

### 3) *The Promotion Assistance of Udeng Pacul Gowang*

*Udeng Pacul Gowang* has become a new icon of the Sidoarjo regency, embodying the region's cultural heritage and philosophical values. Mr. Monali Patah first introduced the Udeng Pacul Gowang model. Each udeng part is signified to have a profound significance and symbolism, which reflects the essence and attributes of the Sidoarjo people. The portrait of *Udeng Pacul Gowang* can be seen in Figure 4 below.



**Figure 4. Udeng Pacul Gowang as Sidoarjo Souvenir**

The details of the *Udeng Pacul Gowang* consist of 1) half-closed at the top (gowang) exemplifies the wisdom of maintaining confidentiality and an open mind to diverse perspectives; 2) *buncen runcing* symbolizes that an individual must have intelligence, cleverness, high knowledge, a firm, and sturdy soul, 3) *buncen tumpul* represents a sense of humility and modesty, and 4) the side fold represents self-reflection. The *Udeng Pacul Gowang*

exhibits variations in shape and motifs. Sidoarjo batik motifs symbolize fertility and tranquility, elegance and authority, and firmness and courage, distinguishing it from other East Java udeng models. In addition, the Sidoarjo traditional groom makeup model has aesthetic values, including form, content, and appearance, which employ a variety of typical Sidoarjo batik motifs. The batik motifs have meanings about (Ni'mah, 2020).

#### 4) Organizing Cultural Art Event: Bandeng Asap Festival

The Sidoarjo Science Techno Park facilitates various cultural events, including art performances, SME exhibitions, and activities related to the *gunungan* festival, which has become an annual tradition for residents on the coast of milkfish ponds. This activity encourages citizens to engage with the cultural arts of Sidoarjo, thereby reviving the local economy. The festival was held in Damarsi village of Sidoarjo to showcase various Sidoarjo arts, including the Banjar Kemuning Dance, Buri Bandeng Dance, and Gelang Ro'om Dance. The bazaar exhibits official souvenirs of Sidoarjo city, such as Udeng Pacul Gowang, Sidoarjo Batik, and Bandeng Asap. The festival poster and its bazaar are depicted in Figure 5.



Figure 5. Bandeng Asap Festival

#### b. Collaborative Governance Strategy of Sidoarjo Science Techno Park

Referring to the effective strategy for optimizing STP, these events were organized by higher school institutions (UMSIDA and UNHAS) and Dekesda under the coordination of the Sidoarjo District Education and Culture Office. The Sidoarjo STP is governed collaboratively to achieve SME development and increase economic growth. Mustafa et al. (2020) discovered that collaborative stakeholders are the governance strategy employed in developing the Science Techno Park in Semarang City. This strategy groups stakeholders into three categories: The primary stakeholders are those institutions responsible for implementing activities through collaboration programs. They are also the forerunners of the emergence of new technology-based companies facilitated by STP and the primary resource for the emergence of innovators, business and technology partners, and innovation results that are ready to be inspired. The key stakeholders are those who make decisions because they have legal authority. The secondary (or supporting) stakeholders are partners concerned about the STP development process.

Establishing SMEs within the Indonesian economy can potentially enhance the local communities' income and well-being by facilitating the expansion of the products and services available from each region. It will undoubtedly impact the number of regional and foreign tourists who visit for various reasons. The creative economy goods and services can effectively enhance the tourism experience. Pratiwi et al. (2024) also stated that demonstrating the

production of *Udeng Pacul Gowang* to the tourists of the University of Malaya is an effective strategy for this Sidoarjo souvenir to be recognized worldwide.

## 5. CONCLUSION

The cultural arts exploration program implemented by Sidoarjo Science Techno Park has positively impacted the city's economy and tourism. Dekesda has initiated several events collaborating with educational institutions, creative industry players, and local communities. These include the assistance of Kahuripan Airlangga-characterized art ideas, the performance of Wayang Gagrang Porongan and Tembang Mocapat Kahuripan Airlangga Sidoarjo, the assistance of Udeng Pacul Gowang promotion, and the holding Bandeng Asap Festival. The cultural art events have enhanced the city of Sidoarjo's brand identity as a hub for creative industries and cultural tourism while also contributing to economic growth by selling official city souvenirs, Udeng Pacul Gowang.

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