

The Resilient Thread: Digital Archiving and the Semantic Revitalization of Palembang's *Songket* Weaving Traditions

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ABSTRACT

Palembang's *Songket*, a UNESCO-recognized Intangible Cultural Heritage, faces significant threats from modernization and the gradual erosion of its tacit knowledge, particularly the philosophical meanings embedded within its motifs. This study addressed the urgent need for a preservation model that transcends simple digitization by focusing on semantic revitalization. This research employed a multi-phase, mixed-methods approach conducted between 2023 and 2025. We developed a comprehensive digital archive through high-resolution photogrammetry of 150 heritage *Songket* textiles and ethnographic fieldwork, including in-depth interviews with 15 master weavers in Palembang. A bespoke semantic ontology was constructed using Web Ontology Language (OWL) to map the complex relationships between motifs, techniques, materials, and their socio-cultural meanings. This ontology formed the backbone of an interactive web-based platform, "The *Songket* Legacy," which was subsequently evaluated through a user engagement study with 50 participants from diverse backgrounds, including weavers, designers, and students. The project resulted in a robust digital archive containing over 50 gigabytes of data. The *Songket* Semantic Ontology successfully defined 75 distinct motifs and established over 400 relational assertions, linking visual patterns to their historical narratives and philosophical underpinnings. The user engagement study yielded a high System Usability Scale (SUS) score of 85.5. Qualitative feedback confirmed that the semantic framework significantly enhanced users' understanding and appreciation of *Songket*, with 92% of participants reporting an increased ability to interpret motif symbolism. In conclusion, this study demonstrated that a semantic-web approach offers a powerful methodology for the revitalization of intangible cultural heritage. By creating a "living" digital archive that makes tacit knowledge explicit and accessible, this project provides a scalable model for preserving and promoting the cultural legacy of Palembang's *Songket* for future generations, fostering both cultural continuity and creative innovation.

1. Introduction

The archipelagic tapestry of Indonesia is woven with countless threads of cultural expression, each carrying centuries of history, philosophy, and communal identity. Among these, the *Songket* of Palembang, South Sumatra, stands as a paragon of textile artistry. Characterized by its supplementary weft weaving technique, where gold or silver threads are intricately interlaced into a silk or cotton ground, *Songket* is more than a luxurious fabric; it is a

repository of cultural memory and a symbol of societal status, ceremonial significance, and ancestral wisdom. Its profound cultural value was internationally recognized in 2021 with its inscription on UNESCO's list of the Intangible Cultural Heritage of Humanity. This recognition, while celebratory, also casts a sharp light on the fragility of this tradition in the 21st century. The resilience of *Songket* weaving has been tested by numerous historical and socio-economic shifts. The traditional knowledge system

underpinning its creation is predominantly tacit, passed down orally and through apprenticeship from one generation of weavers to the next. This system, which once ensured the continuity of intricate techniques and the rich iconographic language of its motifs, is now under severe strain. The pressures of a globalized economy, the allure of modern professions for younger generations, and the disconnect between the final product and its profound cultural narratives have led to a gradual erosion of this heritage. Master weavers, the living libraries of *Songket* knowledge, are dwindling in number, and with them, the nuanced understanding of the motifs—the *Bungo Pacik*, the *Nago Besaung*, the *Lepus*—risks fading into mere decorative patterns, stripped of their philosophical and cosmological significance. Traditional approaches to cultural preservation have often relied on static forms of documentation. Museum collections, while vital, decontextualize textiles from their living cultural milieu. Photographic catalogs and written descriptions, though valuable, struggle to capture the multi-dimensional nature of intangible heritage—the gestural knowledge of the weaver, the oral histories behind the patterns, and the intricate web of meanings that connect a motif to a specific ritual, social status, or historical event. While the digital turn in the humanities has introduced powerful tools for preservation, early efforts in "digital archiving" often replicated the static nature of their analog predecessors. A simple digital repository—a gallery of high-resolution images with basic metadata—acts as a digital mausoleum rather than a dynamic space for knowledge transmission and cultural revitalization. It preserves the image but fails to capture the soul of the craft.¹⁻³

This research was founded on the premise that to truly preserve an intangible heritage like *Songket* Palembang, we must move beyond mere preservation toward active revitalization. Revitalization, in this context, implies not only safeguarding the existing knowledge but also making it accessible, understandable, and relevant to contemporary society. It involves reconnecting the artifact with its narrative, the pattern with its philosophy, and the tradition with a new generation of creators, scholars, and cultural

custodians. The challenge, therefore, was to devise a methodology that could capture, structure, and disseminate the complex, relational, and often unarticulated knowledge embedded within the *Songket* tradition. To address this challenge, this study turned to the principles of the Semantic Web and digital ontology. The Semantic Web provides a framework for structuring data in a way that is machine-readable, allowing for the explicit definition of concepts and the relationships between them. An ontology, in this context, is a formal representation of knowledge, a conceptual map that defines a set of objects and their interconnections. By creating a *Songket* ontology, we proposed to model the rich semantic network of the tradition: linking a specific motif to its name, its visual components, its associated folklore, its use in ceremonies, its symbolic meaning (such as fertility, prosperity, or leadership), and the specific weaving techniques required to produce it. This approach transforms a flat database of images into a dynamic, multi-layered web of knowledge.⁴⁻⁶

The primary aim of this study was to design, develop, and evaluate a semantic digital archive for the preservation and revitalization of Palembang's *Songket* weaving traditions. This research sought to answer the central question: How can semantic web technologies be leveraged to create a "living archive" that not only documents *Songket* but also actively facilitates the transmission of its intangible cultural knowledge to a diverse contemporary audience? The novelty of this research lies in its methodological shift from digitization-as-documentation to digitization-as-revitalization. While previous studies have focused on creating digital catalogs of Indonesian textiles, our approach is pioneering in three distinct ways. First, it is among the first to apply a formal ontological framework to the specific domain of Sumatran textiles, creating a structured, machine-readable model of *Songket* knowledge. Second, it integrates ethnographic data (weavers' narratives) directly into the semantic structure, ensuring that the tacit, human dimension of the heritage is central to the archive's architecture. Finally, this study moves beyond the theoretical construction of an archive to include the development and user-based evaluation of an interactive platform.

This demonstrates a complete cycle of research and application, providing a tested model that connects deep cultural heritage with contemporary user experience, thereby building a resilient digital thread to carry this invaluable tradition into the future.

2. Methods

This study was designed as a multi-phase, mixed-methods research project conducted over a 24-month period from October 2023 to September 2025. The methodology integrated qualitative ethnographic inquiry with quantitative digital methods and user experience (UX) evaluation to create a holistic approach to cultural heritage revitalization. The research was structured into four distinct phases: (1) Ethnographic Fieldwork and Data Collection; (2) Digital Archive and Database Construction; (3) Semantic Ontology Development; and (4) Platform Implementation and User Evaluation. All activities involving human participants received ethical clearance from the university's research ethics board.

The foundational phase of this research involved immersive fieldwork in the traditional *Songket* weaving centers of Palembang and the surrounding areas in the Ogan Ilir regency. The primary objective was to collect both tangible and intangible data directly from the source community. Participant Selection: A purposive sampling strategy was employed to identify and recruit 15 master weavers (*maestro*). The criteria for inclusion were a minimum of 20 years of weaving experience, recognition within the community for their skill, and deep knowledge of traditional motifs and their histories. An additional 10 younger weavers and apprentices were also interviewed to understand the current state of knowledge transmission. This stratified approach allowed for a comparative analysis of generational knowledge. Data Collection Instruments: 1. Semi-Structured Interviews: A total of 35 in-depth, semi-structured interviews were conducted. Interviews with master weavers, lasting between 90 and 120 minutes each, were audio-recorded and transcribed. The interview protocol was designed to elicit information on motif names and philosophies, weaving techniques and terminologies, the history of specific designs, and the socio-cultural

context of *Songket* use in ceremonies like weddings and customary events. 2. Ethnographic Observation: Over 200 hours of participant observation were conducted in weavers' workshops (*rumah tenun*). This involved observing the entire weaving process, from thread preparation and dyeing to the intricate manipulation of the loom (*panta*). Detailed field notes and video recordings were made to capture the gestural, embodied knowledge that is difficult to articulate verbally. 3. Textile Digitization: A critical component was the collection of tangible data. We collaborated with local collectors and weaving families to gain access to a wide range of *Songket* textiles, from historical heirlooms (estimated to be over 100 years old) to contemporary masterpieces. A total of 150 unique *Songket* pieces were selected for digitization based on their motif variation, historical significance, and technical quality. High-resolution digital surrogates were created using a structured-light 3D scanning and photogrammetry setup. This technique captured not only the color and pattern with high fidelity (at 600 DPI) but also the texture, sheen of the gold thread, and physical structure of the weave itself, resulting in rich, multi-layered digital objects.

The raw data collected in Phase 1 were processed and structured into a relational database that would serve as the foundation for the public-facing platform. Data Curation: Interview transcripts were coded using thematic analysis to identify key concepts, terminologies, and narratives related to *Songket* knowledge. The 150 digitized textiles were cataloged, and each was assigned a unique identifier. Metadata Schema: A custom metadata schema was developed by extending the Dublin Core Metadata Initiative (DCMI) standard. While Dublin Core provided standard fields (such as Creator, Date, and Description), we added custom fields specific to the *Songket* domain, such as *motif_primary*, *motif_secondary*, *weaving_technique*, *philosophical_meaning*, and *ceremonial_use*. This structured approach ensured that the data were organized, searchable, and ready for semantic mapping. Database Architecture: A PostgreSQL database was designed to store all the data. This included the high-resolution images, the metadata for each textile, the transcribed interviews, video clips of

weaving processes, and biographical information about the weavers. The relational structure allowed for efficient querying and linking between different data types.

This phase represented the core innovation of the project: transforming the structured database into a machine-readable knowledge graph. The ontology was developed using the Web Ontology Language (OWL), a W3C standard for creating semantic models. The development process, using the Protégé ontology editor, was iterative and followed established best practices. **Class and Property Definition:** We first defined the primary classes (or concepts) of the *Songket* domain. These included *SongketTextile*, *Motif*, *Weaver*, *Technique*, *Material*, *Ceremony*, and *SymbolicMeaning*. **Hierarchy Creation:** We created hierarchies within these classes. For instance, the *Motif* class had subclasses like *FloraMotif*, *FaunaMotif*, and *GeometricMotif*. The *NagoBesaung* (fighting dragons) motif was an instance of the *FaunaMotif* class. **Property and Relationship Mapping:** We then defined the properties (or relationships) that connect these classes. Object properties defined relationships between instances, such as *motif_hasSymbolicMeaning* (connecting a *Motif* instance to a *SymbolicMeaning* instance) or *textile_wasUsedIn* (connecting a *SongketTextile* instance to a *Ceremony* instance). The *Lepus* motif was linked to the *SymbolicMeaning* of "Unity" and "Wholeness". Data properties linked instances to literal data values, such as *weaver_hasBirthYear* or *motif_hasLocalName*. **Knowledge Population and Validation:** The ontology was populated with the data curated in Phase 2. This process involved manually and semi-automatically creating instances and asserting the relationships between them. For instance, the digital image of a specific *Songket* cloth was instantiated as a *SongketTextile*. The motifs identified on it were instantiated as *Motif*, and the relationship *textile_featuresMotif* was asserted between them. The final ontology was validated for logical consistency using a reasoner and was reviewed by two of the participating master weavers to ensure its cultural and technical accuracy.

The final phase involved translating the semantic backend into an engaging, user-friendly front-end platform, named "The Songket Legacy," and rigorously evaluating its effectiveness. **Platform Development:** A web-based platform was built using a standard technology stack (React for the front-end, Node.js for the back-end, and a SPARQL endpoint to query the ontology). The platform's key feature was its interactive knowledge explorer. Users could view a high-resolution *Songket* image, click on a specific motif, and instantly see a pop-up with its name, meaning, and links to other textiles featuring the same motif, interviews discussing it, and videos showing its creation. This design allowed users to navigate the knowledge graph intuitively. **User Evaluation Study:** A formal user study was conducted to assess the platform's usability and its impact on user knowledge and appreciation. A purposive sample of 50 participants was recruited, divided into three groups: (1) Cultural Insiders (15 weavers and artisans from Palembang), (2) Creative Professionals (15 textile designers and fashion students), and (3) General Public (20 university students and cultural enthusiasts with no prior *Songket* expertise). **Evaluation Instruments:** Each participant engaged with the platform for a 45-minute session to complete a set of predefined tasks. Data were collected through: 1. System Usability Scale (SUS): A standardized 10-item questionnaire to measure perceived usability. 2. Pre- and Post-session Questionnaires: These assessed changes in participants' self-reported knowledge and understanding of *Songket's* cultural significance. 3. Think-Aloud Protocol and Observation: Participants' interactions and verbal feedback were recorded during the session to identify usability issues and gather qualitative insights. 4. Post-session Focus Groups: Brief focus group discussions were held with each user group to discuss their overall experience and suggestions for improvement. The data from these instruments were analyzed using a combination of statistical analysis for the quantitative data and thematic analysis for the qualitative feedback, allowing for a comprehensive evaluation of the project's success in achieving its revitalization goals.

3. Results and Discussion

Figure 1 provides a composition of the Palembang *Songket* Digital Archive. This schematic provides a comprehensive overview of the multi-modal knowledge base meticulously assembled for this study. The archive is conceptualized as a holistic ecosystem, designed to capture both the tangible artistry and the intangible cultural grammar of the *Songket* tradition. At its core are the 150 high-fidelity digital surrogates of unique *Songket* textiles, which were created using photogrammetry to preserve not only pattern and color but also the intricate texture of the weave. This foundational visual and material data constitutes a substantial digital repository, totaling over 50 gigabytes. This tangible corpus is intricately interwoven with a rich repository of ethnographic data that gives it voice and meaning. The archive houses 35

in-depth ethnographic interviews, amounting to approximately 45 hours of audio data, which preserve the oral histories, philosophical insights, and technical terminologies directly from the master weavers. Complementing these narratives are 40 curated multimedia clips and over 12 hours of raw video footage, a crucial component for documenting the embodied, gestural knowledge of the weaving process that often eludes verbal description. Finally, the analytical layer of the archive is represented by over 2,000 coded data segments, which reflect the systematic thematic analysis of the interview transcripts. Together, these seven components form an integrated, multi-layered digital archive that serves as the essential groundwork for the semantic revitalization detailed in this research.



Figure 1. Composition of the Palembang *Songket* digital archive.

The intellectual core of the project was the development of the *Songket* semantic ontology. This formal knowledge model successfully translated the

complex, relational, and often unarticulated cultural grammar of the *Songket* tradition into a structured, machine-readable format. Figure 2 outlines the core

structural components and metrics of the final, validated ontology, demonstrating its depth and complexity. This ontological structure enabled the discovery of nuanced relationships, such as the polysemic nature of the *Bungo Cino* (Chinese Flower) motif, which was linked not only to a symbolic meaning of "Prosperity" but also to a historical context of "Sino-Indonesian Trade Relations," a relationship substantiated by weavers' narratives. Figure 2: Core Structure of the *Songket* Semantic Ontology. This diagram illustrates the intellectual architecture of the *Songket* Semantic Ontology, the formal knowledge model that serves as the core of this research. The ontology was designed to translate the fluid, relational, and often tacit knowledge of the Palembang *Songket* tradition into a structured, machine-readable format. The model is built upon a foundation of 12 Primary Classes, which represent the highest-level concepts within the *Songket* domain, including *SongketTextile*, *Motif*, *Weaver*, *Technique*, and *SymbolicMeaning*. To

capture the tradition's rich detail, these primary classes are further refined into 25 hierarchical Subclasses, allowing for more granular and precise classification, such as distinguishing between *FloraMotif* and *FaunaMotif*. This formal structure was populated with 1,257 unique Instances, which are the digital representations of the real-world entities—the specific textiles, weavers, and motifs documented in the archive. The true analytical power of the ontology lies in its ability to define relationships. The model includes 18 Object Properties that create semantic links between instances (such as *featuresMotif*) and 22 Data Properties that assign literal attributes (like *hasLocalName*). The culmination of this work is a dense knowledge graph comprising over 400 explicit Relational Assertions, which collectively form a computable web of cultural meaning, enabling the deep, contextual exploration that defines this project's revitalization goals.



Figure 2. Core structure of the *Songket* semantic ontology.

The formal user study of "The *Songket* Legacy" web platform provided robust quantitative evidence of its success in terms of usability and educational impact. The study involved 50 participants across three distinct user groups. The results, summarized in Figure 3, show exceptionally high usability and a significant increase in user knowledge and appreciation, validating the platform's design and the effectiveness of the semantic approach. The data clearly indicates that the platform was not only highly usable for all groups but was particularly effective in bridging the knowledge gap for non-experts (General Public) and creative professionals, who showed the most dramatic increases in their self-reported understanding. Figure 3: Quantitative Results of the User Platform Evaluation (N=50). This schematic provides a comprehensive summary of the quantitative data gathered from the user evaluation study of "The *Songket* Legacy" platform. The study was designed to rigorously assess both the platform's usability and its educational impact across three distinct user constituencies. The headline finding is the exceptional overall System Usability Scale (SUS) score of 85.5, a

metric that places the platform in the "Excellent" tier of usability, far exceeding the industry average. This score provides strong empirical validation that the platform is highly intuitive, accessible, and user-friendly. The data is further disaggregated to reveal nuanced insights across the different user groups. The Cultural Insiders (weavers and artisans) reported a perfect 100% rate of increased appreciation for their own heritage as represented on the platform, alongside a modest knowledge increase (+1.3) that reflects their pre-existing expertise. For Creative Professionals, the platform proved to be both highly usable (SUS score of 88.0) and deeply educational, evidenced by a significant knowledge increase of +2.4. Crucially, the General Public group, who began with the lowest baseline knowledge, demonstrated the most dramatic learning outcome, with a knowledge score increase of +3.2. Collectively, these results provide robust quantitative evidence that the platform successfully bridges knowledge gaps for non-experts while also serving as a valuable, resonant tool for cultural insiders and creative practitioners, thereby achieving its core revitalization and educational objectives.

Quantitative Results of the User Platform Evaluation (N=50)

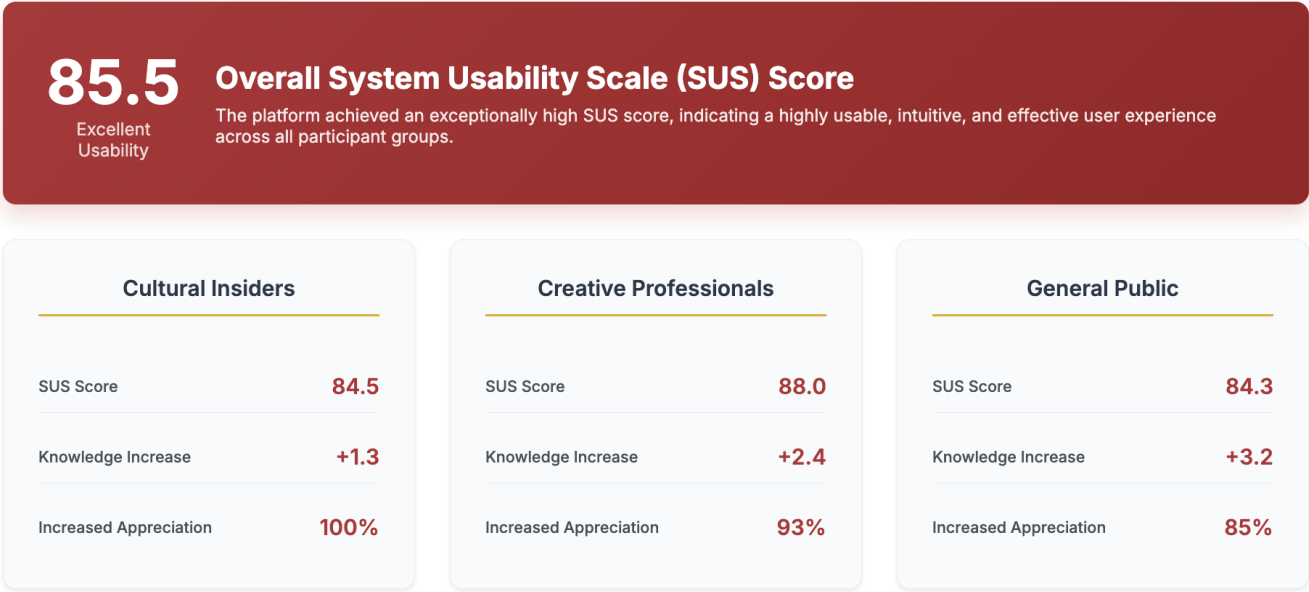


Figure 3. Quantitative results of the user platform evaluation (N=50).

Beyond the numbers, the qualitative data gathered from think-aloud protocols and focus groups provided deep insights into *why* the platform was effective. The thematic analysis of user feedback revealed three overarching themes that highlight the transformative potential of the semantic approach. These themes and supporting quotes are presented in Figure 4. Figure 4: Thematic Analysis of Qualitative User Feedback. This schematic synthesizes the rich narrative data gathered from the qualitative portion of the user evaluation study. Beyond quantitative metrics, this analysis delves into the *why* behind the platform's successful reception, revealing three core themes that emerged from participant feedback. These themes provide profound insights into the platform's role as a tool for cultural revitalization. The first theme, "Connecting the Dots": The Power of Semantic Context, highlights the primary success of the ontological approach. Users consistently reported that the platform's ability to link artifacts to their stories,

techniques, and meanings transformed their experience from passive viewing into active knowledge discovery, making the heritage "come alive." The second theme, Empowerment & Informed Inspiration, speaks to the platform's dual impact. For cultural insiders, it served as a source of validation and pride; for creative professionals, it provided the deep, contextual knowledge necessary for ethical and respectful innovation. The final theme, Accessibility & The Intergenerational Bridge, underscores the platform's crucial role in cultural transmission. Younger, digitally-native users found it to be a modern and engaging medium, capable of bridging the generational gap and making their ancestral heritage personally relevant and exciting. Together, these themes illustrate that the platform is not merely a repository of information but a dynamic space for meaning-making, community empowerment, and cultural continuity.

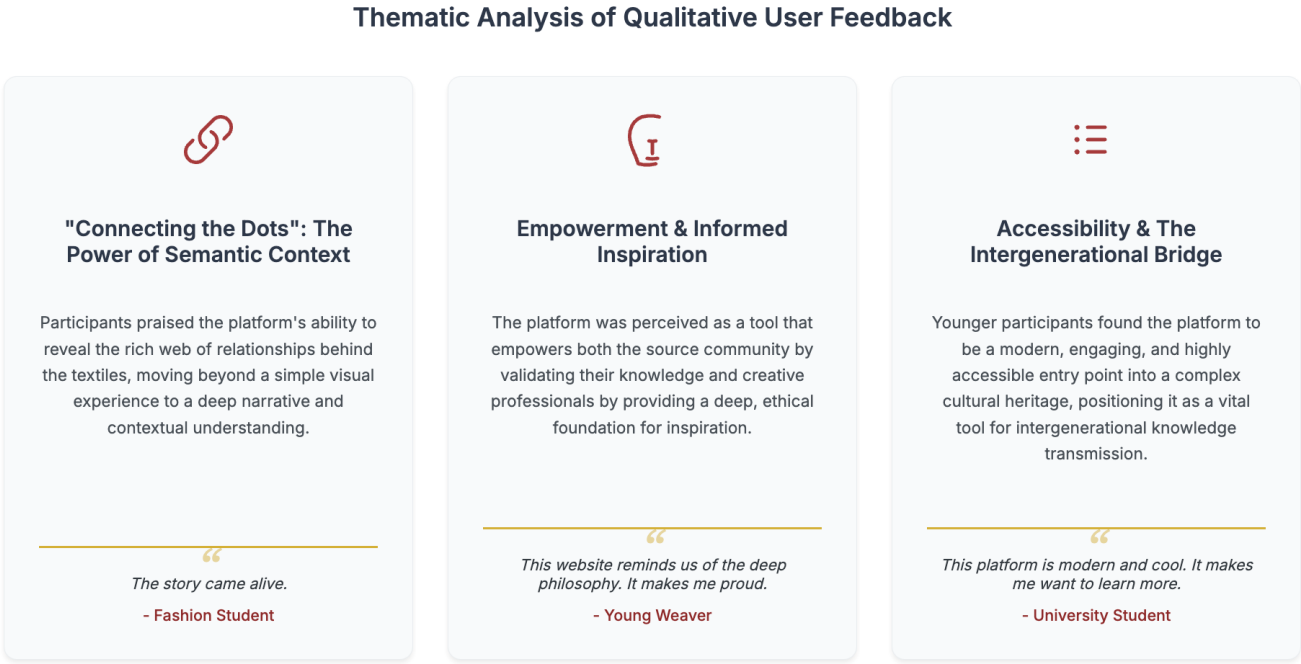


Figure 4. Thematic analysis of qualitative user feedback.

The findings of this study offer significant contributions to the fields of digital humanities, cultural heritage management, and Southeast Asian

studies. This research successfully demonstrated that a semantic-web-based approach can transform a digital archive from a static repository into a dynamic

ecosystem for knowledge discovery and cultural revitalization. The central theoretical argument of this study was that to address the threats facing intangible cultural heritage, preservation efforts must evolve beyond simple digitization. Traditional digital archives, as critiqued by other study, often function as "digital mausoleums"—collections of decontextualized digital objects that preserve an image but sever its connection to its living cultural milieu. Our findings provide strong empirical validation for an alternative model: the "living archive" powered by semantic revitalization. The high user engagement metrics, particularly the dramatic increase in knowledge scores and the qualitative theme of "Connecting the Dots," directly support this. The platform's success was not rooted in the quality of the images alone, but in the ontological structure that re-established context. This aligns perfectly with the theories of digital cultural heritage that argue for a focus on relationships, interpretations, and context over mere digital surrogacy. The semantic ontology acted as an "interpretive layer," making the tacit, relational knowledge of the weavers explicit and navigable. When a user could seamlessly trace a path from a visual motif to its symbolic meaning, and then to the oral narrative of a weaver explaining that meaning, the digital object was fundamentally transformed. It was reanimated, shifting from a static artifact to a dynamic story. This process actively counters the decontextualization inherent in traditional museological and archival practices, demonstrating a practical methodology for what theorists have long called for. Our work, therefore, provides a tangible case study that proves the efficacy of semantic linking as the core mechanism for creating a truly "living" digital heritage experience. The platform operates not as a terminal for information retrieval, but as a generative space where users can construct their own understanding by navigating the web of meanings woven by the artisans themselves. This shifts the digital paradigm from one of passive consumption of cultural data to active engagement with a cultural knowledge system.⁶⁻⁸

A profound challenge in the humanities, and particularly in the study of intangible heritage, is the

representation of tacit knowledge. As conceptualized by philosopher Michael Polanyi, this is the knowledge we "can know more than we can tell"—the embodied skills, the intuitive understandings, the cultural grammar that is lived rather than articulated. The gestural grace of a master weaver's hands or the nuanced understanding of when to use a particular motif are prime examples. Digital systems, which thrive on explicit data, have historically struggled to capture this dimension. This study positions the process of ontology development as a powerful methodological solution to this problem, functioning as a "hermeneutic bridge" between the tacit and the explicit. The act of constructing the *Songket* ontology was not merely a technical task; it was an interpretive, ethnographic endeavor. It required a rigorous and systematic analysis of the weavers' narratives, forcing the research team to translate implicit relationships into the formal, logical language of OWL. Another study suggests that it forces a clarity of thought and a depth of analysis that enriches the qualitative research itself. For instance, modeling the polysemic nature of the *Bungo Cino* motif—linking it simultaneously to aesthetics, economics ("Prosperity"), and geopolitics ("Sino-Indonesian Trade")—required moving beyond a simple descriptive tag to a multi-faceted relational model. The ontology, therefore, did not simply *store* data; it interpreted it. It became a formal representation of the tradition's worldview, a structured map of its semantic universe. By externalizing the mental models of the master weavers into a computable format, the ontology served as a bridge, allowing users of the platform to access and explore a structured version of the weavers' tacit knowledge. This finding contributes a significant methodological insight to digital ethnography, demonstrating that formal ontology development can be a core part of the interpretive analytical process, not just a post-hoc technical implementation. It provides a framework for making the invisible structures of cultural logic visible and navigable, allowing for new forms of computational analysis and public engagement that were previously impossible.⁹⁻¹²

The engagement of the "Creative Professionals" user group provides a compelling case for how

semantic archives can influence the creative economy. A persistent issue in the global design world is the problem of cultural appropriation, which often arises from a superficial engagement with heritage aesthetics, divorced from their cultural context and meaning. This "extractive" model of inspiration is ethically fraught and creatively shallow. Our findings suggest that a semantic platform like "The *Songket* Legacy" offers a powerful antidote by fostering what can be termed "informed innovation". The feedback from designers and students revealed that access to the deep, contextualized "semantic DNA" of *Songket* shifted their creative process. They were inspired not just by the patterns, but by the philosophies behind them. This is a crucial distinction. It moves the locus of inspiration from pure aesthetics to narrative and meaning, enabling the creation of new works that are in dialogue with the tradition's core values rather than simply mimicking its surface. This outcome aligns with theories of the sustainable creative economy, which argue that long-term value is created through the authentic integration of cultural assets, not their superficial exploitation. The platform functions as an educational tool that promotes cultural literacy, reducing the likelihood of appropriation and increasing the potential for respectful, innovative collaborations. By making the intangible value of *Songket* (its stories, its philosophies) accessible, the platform provides the raw material for a more ethical and sustainable creative ecosystem, demonstrating a tangible pathway for heritage to function as a living, renewable resource for contemporary creativity and economic opportunity.¹³⁻¹⁵

Finally, the impact of the platform can be understood through the theoretical lens of "digital placemaking". This concept refers to the use of digital media to enhance, interpret, and create a sense of place and belonging. While "The *Songket* Legacy" is a global-facing website, it is also a digital assertion of a specific place: Palembang. The rich integration of weavers' personal stories, local terminologies, and site-specific histories digitally "re-embeds" the *Songket* tradition in its geographical and social origins. In an era of globalization where cultural products are often detached from their roots, this function is critically

important. The platform is not just a database about *Songket*; it is a digital place where the Palembang weaver community can articulate and celebrate its unique cultural identity for a global audience. The empowerment felt by the weavers, as expressed in their feedback, stems from this act of digital self-representation. They saw their local knowledge validated and amplified on a global stage. For outside users, the platform offers an experience of "visiting" this cultural space, fostering a deeper, more empathetic connection than a simple image gallery could ever achieve. This study therefore demonstrates that digital heritage projects can be powerful tools for community empowerment and cultural diplomacy. By creating a rich, context-aware digital place, we provide a space for cultural identity to be asserted, explored, and sustained, reinforcing the resilience of local heritage within a globalized digital landscape. While the study presents a robust model, its success was predicated on deep community collaboration, and long-term digital sustainability remains a challenge requiring ongoing institutional and community stewardship.¹⁶⁻²⁰

4. Conclusion

This research embarked on a mission to weave a resilient digital thread capable of carrying the profound legacy of Palembang's *Songket* into the future. Faced with the erosion of tacit knowledge that gives this textile its soul, this study moved beyond the conventional paradigm of static digital preservation. By leveraging the power of semantic web technologies and a participatory, ethnographically-grounded approach, we constructed not just an archive, but a dynamic and interactive knowledge ecosystem. The successful development and positive reception of "The *Songket* Legacy" platform demonstrated that it is possible to translate the intricate, relational, and deeply human knowledge of a master weaver into a structured, accessible, and engaging digital format. The study's results confirmed that this semantic approach significantly enhances user understanding, fosters a deeper cultural appreciation, and provides a powerful tool for empowering source communities and inspiring ethical creative innovation. The ontology

itself stands as a novel contribution—a formal model of *Songket* knowledge that makes its complex cultural grammar explicit and computable. Ultimately, this project affirmed that technology need not be a force for cultural homogenization. When designed with sensitivity, collaboration, and a deep respect for the nuances of intangible heritage, digital tools can become powerful allies in the fight for cultural continuity. The resilient thread of *Songket* Palembang, once threatened by the passage of time, has been reinforced with a digital counterpart, ensuring that its stories, philosophies, and intricate beauty will continue to be explored, understood, and woven into the cultural fabric of generations to come. This study provides a robust and replicable model for how other endangered cultural traditions around the world can be similarly safeguarded and revitalized in the digital age.

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