INTERNATIONAL MULTIDISCIPLINARY JOURNAL OF RESEARCH FOR INNOVATION, SUSTAINABILITY AND EXCELLENCE
Published by: RISEJOURNALS.ORG | Online ISSN: 3028-032X | Print ISSN: 3028-0370
VOLUME 4, ISSUE NO. 10

Preserving History Through Visual Technology Innovation: University of San Agustin, Iloilo City

DOI: 10.5281/zenodo.22248025

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Abstract

The University of San Agustin, founded in 1904, possesses buildings and cultural landmarks that embody its architectural development, educational mission, institutional memory, and Augustinian identity. The absence of a comprehensive Conservation Management Plan leaves these assets vulnerable to material deterioration, incompatible alteration, fragmented documentation, and uneven conservation practice. This study developed a provisional Conservation Management Plan integrating established heritage-conservation principles with visual technology innovation for Herrera Hall and Dolse Garcia Hall. It employed a descriptive qualitative approach guided by the Burra Charter and informed by the Nara Document on Authenticity. Evidence was assembled through archival research, non-invasive site observation, condition and authenticity assessment, cultural mapping, visual and architectural documentation, and 22 semi-structured stakeholder interviews with purposively selected stakeholders conducted from April to May 2026. Data were explicated through coding, categorizing, and conceptualizing and compared across documentary, observational, architectural, visual, and stakeholder sources. The qualitative assessment indicated that both buildings retain historical, architectural, educational, social, spiritual, and symbolic significance. Herrera Hall retains recognizable authenticity in its form, setting, institutional use, and architectural details, while Dolse Garcia Hall reflects more extensive material and design adaptation but retains its historical associations, location, continuing use, spatial memory, and institutional relevance. Visible moisture effects, surface weathering, paint deterioration, localized cracking, aging materials, and modernization pressures require systematic assessment and intervention; no structural engineering or materials testing was undertaken. The proposed plan combines preventive conservation, compatible repair, adaptive reuse, documentation, monitoring, risk management, stakeholder participation, and institutional governance. Augmented reality, QR-based interpretation, three-dimensional modeling, photogrammetry, LiDAR-assisted documentation, and digital archives are proposed as future, non-invasive tools rather than validated operational systems. The resulting framework remains subject to institutional, technical, professional, and stakeholder review and validation.

Keywords: adaptive reuse, augmented reality, conservation management plan, digital heritage, heritage conservation, University of San Agustin, visual technology innovation

Introduction

Cultural heritage is not limited to old fabric or monumental architecture. It includes the meanings, associations, uses, memories, and traditions through which communities understand places over time. In contemporary conservation, this broader conception has shifted attention from the isolated preservation of objects toward the sustained management of culturally significant places. The Burra Charter defines conservation as the processes of looking after a place so that its cultural significance is retained and requires significance to be understood before policy and intervention are determined (Australia ICOMOS, 2013). This values-based approach is particularly relevant to educational campuses, where historic buildings continue to accommodate changing academic, administrative, and social functions. Their significance is renewed through daily use, yet the same demands that keep them relevant may expose them to alteration, overuse, deferred maintenance, and development pressure.

Authenticity within such living settings cannot be reduced to untouched material. The Nara Document on Authenticity recognizes that judgments may draw upon form and design, materials and substance, use and function, traditions and techniques, location and setting, and spirit and feeling (ICOMOS, 1994). Stovel (2007) and Jokilehto (2006) similarly explained that authenticity and integrity must be understood in relation to cultural context and continuity. For active university buildings, therefore, continued educational use can support heritage value, provided that change is compatible, necessary, documented, and respectful of significant fabric and associations. Adaptive reuse is not automatically contrary to conservation; when carefully managed, it can sustain a building's social relevance, distribute the costs of care, and prevent abandonment. The challenge is to distinguish compatible adaptation from intervention that gradually erodes character.

The Philippine policy environment affirms this responsibility. Republic Act No. 10066, or the National Cultural Heritage Act of 2009, establishes the protection, preservation, conservation, and promotion of the nation's cultural heritage and recognizes the roles of cultural agencies, local institutions, owners, and communities in safeguarding cultural property (Republic Act No. 10066, 2010). Educational institutions responsible for historically important buildings must therefore understand why these places matter, maintain credible records of change, prevent avoidable loss, and ensure that development decisions are informed by cultural significance. The present study responds specifically to the absence of an integrated management instrument for Herrera Hall and Dolse Garcia Hall linking historical

research, condition assessment, institutional policy, preventive maintenance, adaptive use, stakeholder participation, and interpretation.

The University of San Agustin in Iloilo City presents a compelling setting for such an inquiry. Founded by the Augustinians in 1904, the institution developed alongside the educational and urban history of Western Visayas. Its built environment records successive periods of foundation, reconstruction, institutional expansion, modernization, and continuing academic service (Arreza, 1994; Funtecha, 2009). Herrera Hall and Dolse Garcia Hall are among the campus structures most closely associated with this continuity. Herrera Hall occupies a prominent administrative and symbolic position and displays a formal institutional composition associated with the university's postwar development. Dolse Garcia Hall represents an earlier layer of campus life and has accommodated changing academic and support functions. Together, they preserve tangible evidence of architectural evolution and intangible associations arising from the experiences of Augustinian religious, administrators, teachers, students, alumni, workers, and visitors.

The two buildings remain used rather than museumized. This circumstance strengthens their relevance but complicates their care. Functional requirements, installation of contemporary services, repair decisions, accessibility needs, safety standards, and campus growth can lead to piecemeal interventions when there is no common conservation policy. Tropical exposure compounds the problem through moisture, heat, intense rainfall, biological growth, corrosion, and recurring weather events. Surface deterioration may appear minor when treated in isolation, but repeated incompatible repairs or failure to address underlying causes can produce cumulative loss of significant materials and details. A conservation management plan is therefore needed not as a static restoration prescription but as a continuing decision framework.

Digital technology provides new ways to support this framework. Three-dimensional recording, photogrammetry, LiDAR-assisted scanning, Historic Building Information Modeling, augmented reality, QR-coded interpretation, and digital archives can improve documentation, analysis, interpretation, and public access. Historic Building Information Modeling can connect geometry with information about building elements and their histories (Murphy et al., 2013). Augmented reality can superimpose digital information on a user's view of a real environment, supporting situated interpretation without physically attaching extensive explanatory devices to sensitive fabric (Azuma, 1997; Billinghurst & Dünser, 2012). In heritage settings, these technologies may preserve records of present condition, reconstruct lost phases for educational purposes, compare proposed interventions, and communicate otherwise inaccessible archival material. Their value, however, depends on whether they serve conservation objectives rather than becoming technological spectacles detached from significance.

Visual technology is especially appropriate in architecture because spatial relationships, construction details, deterioration patterns, and proposed changes are difficult to communicate through text alone. A three-dimensional model can reveal massing and circulation; an augmented-reality layer can show an earlier building phase or a proposed reversible addition in place; and a QR-based system can give visitors guided access to verified archival content. Digital systems also permit a degree of interpretation without drilling, mounting, repainting, or otherwise changing heritage surfaces. Nevertheless, digital records require standards, metadata, backups, version control, permissions, maintenance, and periodic migration. Technology cannot substitute for material conservation, professional judgment, or sustained institutional responsibility.

This study addressed the absence of an integrated conservation-management framework for Herrera Hall and Dolse Garcia Hall. Specifically, it sought to: (1) identify and document their historical development and architectural character; (2) determine their cultural, educational, social, symbolic, and spiritual significance; (3) assess their authenticity, physical condition, and conservation requirements; (4) examine the potential of three-dimensional modeling, augmented reality, QR-based interpretation, and digital archives; and (5) develop a Conservation Management Plan with Visual Technology Integration. The inquiry treated the buildings as living institutional heritage rather than isolated historic artifacts. It consequently joined physical evidence, archival knowledge, stakeholder meaning, functional use, and technological opportunity within a single values-based process.

The study is significant to the University of San Agustin because it provides a basis for consistent decisions concerning maintenance, repair, alteration, adaptive reuse, documentation, interpretation, and resource allocation. It is also relevant to architects and conservation professionals by illustrating how a campus can combine cautious material intervention with non-invasive visualization. For faculty and students, the proposed system can transform familiar buildings into accessible learning resources in architecture, history, culture, engineering, digital media, and Augustinian formation. For administrators, alumni, heritage agencies, and the wider community, it offers a framework for shared stewardship. More broadly, the study contributes to a Philippine institutional case in which conservation principles and visual technology are integrated without assuming that technological innovation, by itself, constitutes preservation.

The inquiry focused on Herrera Hall and Dolse Garcia Hall within the University of San Agustin campus. It examined available historical records, architectural characteristics, cultural meanings, present physical conditions, authenticity, current use, and opportunities for compatible adaptation and digital interpretation. It did not undertake destructive testing, invasive structural investigation, laboratory analysis of materials, or actual construction. Proposed visualizations and adaptive-reuse concepts are planning and interpretive instruments rather than construction authorization. Detailed engineering, code-compliance, accessibility, fire-safety, archaeological, and material-conservation studies remain necessary before physical intervention. These boundaries allow the study to provide an institutionally usable management framework while avoiding claims beyond the evidence generated.

Review of Related Literature

The conceptual foundation of the study rests on values-based conservation. Earlier building-centered approaches often privileged age, style, or fabric, whereas contemporary practice recognizes that significance emerges from the interaction of tangible evidence and cultural meaning. The Burra Charter's sequence—understand significance, develop policy, and manage in accordance with policy—provides a disciplined alternative to repair driven only by immediate operational need (Australia ICOMOS, 2013). It requires evidence from the place, its history, its setting, its use, and the people who value it. This sequence directly informed the study's integration of archival research, physical observation, stakeholder accounts, authenticity assessment, and conservation planning.

Cultural significance is plural rather than singular. Historical value concerns a place's capacity to demonstrate events, periods, people, and institutional development. Aesthetic and architectural value arises from form, composition, material, workmanship, spatial organization, and the sensory qualities of a setting. Scientific value includes the information embedded in construction systems, materials, and successive alterations. Social and spiritual values arise from attachment, memory, collective use, ritual, identity, and belief. Mason (2002) argued that values are central to conservation planning because intervention choices inevitably privilege some meanings and constituencies. A robust assessment therefore makes these values explicit and examines where they reinforce or conflict with one another.

Authenticity gives credibility to the attributes through which significance is expressed. The Nara Document broadened authenticity beyond original material by recognizing culturally diverse sources of information, including design, use, technique, setting, and spirit (ICOMOS, 1994). Jokilehto (2006) distinguished authenticity from integrity: authenticity concerns the credibility of heritage expression, whereas integrity concerns wholeness and the ability of a property to convey significance. Stovel (2007) emphasized that both concepts are most useful when applied to the particular values and attributes of a place. This is crucial for Herrera Hall and Dolse Garcia Hall because both have evolved. Their heritage status depends not on denying change but on determining whether retained form, fabric, use, setting, and associations credibly communicate institutional history.

Conservation of historic buildings requires the diagnosis of causes rather than the cosmetic treatment of symptoms. Feilden (2003) stressed systematic inspection, documentation, compatible materials, minimal intervention, and regular maintenance. Moisture intrusion, for example, may appear as staining, flaking paint, salt deposition, biological growth, or corrosion; repainting without correcting drainage, roof, flashing, plumbing, or ventilation failures conceals rather than resolves deterioration. Likewise, cracks require monitoring and professional interpretation before they are classified as superficial or structural. Preventive conservation is generally less disruptive and less costly than episodic major restoration because it detects risks early and establishes routine care.

Adaptive reuse extends the useful life of existing buildings and can reduce the environmental and cultural costs of demolition. Its conservation value depends on compatibility: new functions should fit existing spatial capacities; significant fabric should be retained; necessary additions should be distinguishable yet sympathetic; and interventions should be reversible where feasible. Continuing use also preserves intangible values because people encounter heritage through ordinary institutional life. In a university, however, the requirements of technology, accessibility, safety, comfort, and academic programming can generate pressure for extensive alteration. A conservation management plan provides criteria for negotiating these demands rather than treating each renovation as an isolated project.

Documentation is both evidence and a conservation action. Measured drawings, photographs, condition maps, archival plans, intervention records, and oral histories preserve knowledge that may be lost through deterioration or change. Three-dimensional recording expands this capacity by capturing geometry and surface information for analysis, monitoring, reconstruction, and interpretation. Murphy et al. (2013) showed how Historic Building Information Modeling can integrate survey data and parametric objects with historical and construction information. Mobile photogrammetry and LiDAR can make recording more accessible, although accuracy, calibration, file formats, and professional verification remain important. A digital model is therefore best understood as a structured record linked to an archive, not merely as an attractive rendering.

Augmented reality occupies a continuum between real and virtual environments (Milgram & Kishino, 1994). It overlays digital content on the physical world, enabling users to encounter historical information, reconstructed building phases, architectural annotations, or proposed conservation measures while standing at the relevant place. Azuma (1997) identified real-time interaction and registration of virtual and real objects as defining characteristics. Educational applications can promote engagement by connecting explanation to immediate spatial experience (Billinghurst & Dünser, 2012). For heritage interpretation, AR can also reduce reliance on permanent signage and enable layered content for different audiences. Its limitations include device compatibility, tracking stability, usability, data maintenance, accessibility, and the risk that visually persuasive reconstructions may be mistaken for verified historical fact.

QR codes provide a comparatively low-cost entry point to digital interpretation. They can connect physical locations to curated pages containing text, photographs, audio, three-dimensional models, timelines, oral histories, and conservation updates. A guided QR route may serve users unfamiliar with markerless AR, while direct image or surface recognition can provide a more immediate experience for capable devices. Both pathways can lead to the same verified content environment. This dual-access approach supports inclusion because it accommodates differences in hardware and digital familiarity while avoiding unnecessary intervention on heritage fabric.

Digital heritage must nonetheless be governed. Files require consistent naming, metadata, rights management, secure storage, redundant backups, format migration, and clearly assigned custodians. Historical reconstructions should disclose the evidence on which they are based and distinguish documented fact from interpretation or proposal. Images of restricted areas, security systems, or vulnerable fabric may require controlled access. Personal narratives and interview material require consent and ethical handling. An institution that installs QR codes or AR experiences without a maintenance plan may create another layer of deterioration—broken links, obsolete software, unverified content, and abandoned hardware. Digital sustainability is therefore part of conservation sustainability.

A conservation management plan integrates these concerns into a continuing system. It normally includes a statement of significance, identification of significant attributes, assessment of condition and risks, conservation policies, permitted and prohibited interventions, maintenance and monitoring schedules, documentation protocols, disaster preparedness, responsibilities, funding arrangements, stakeholder processes, and review cycles. For the University of San Agustin, visual technology adds a further layer: the same digital records used for documentation can support teaching, public interpretation, option testing, and institutional memory. The proposed framework therefore positions technology as a servant of values-based conservation—useful when it improves evidence, reversibility, accessibility, or participation, but insufficient without material care and governance.

Methodology

The study employed a descriptive qualitative design combining documentary research, non-invasive architectural observation, cultural mapping, visual documentation, and stakeholder perspectives. A qualitative approach was appropriate because the inquiry sought detailed accounts of meaning, use, memory, significance, physical condition, and institutional responsibility rather than numerical estimation. Creswell and Poth (2018) describe qualitative inquiry as suitable for exploring how individuals or groups understand a social or human problem within context. The design allowed documentary, physical, visual, and stakeholder-derived evidence to be considered together while keeping the evidentiary limits of each source distinct. The Burra Charter supplied the principal conservation logic: evidence was first assembled to understand the places and their significance, then used to formulate policy and management action (Australia ICOMOS, 2013). The Nara Document informed the assessment of authenticity across form and design, materials and substance, use and function, traditions and techniques, location and setting, and spirit and feeling (ICOMOS, 1994).

The research locale was the University of San Agustin campus in Iloilo City, Philippines, with Herrera Hall and Dolse Garcia Hall as the bounded cases. Their selection was purposive. Both have historical and architectural associations with the university's development, remain prominent within the campus, continue to support institutional functions, and exhibit the interaction between retained heritage character and contemporary adaptation. Locating both cases within one active campus also enabled comparison of their development, use, condition, authenticity, and conservation requirements within a shared governance and environmental setting.

The study involved 22 purposively selected stakeholders from six information-rich groups with direct knowledge of the buildings or responsibility for their use, interpretation, planning, documentation, and care. Participants comprised four university administrators or facilities personnel, five faculty members in architecture, history, or cultural studies, three university archive and museum personnel, four architects or heritage practitioners, three religious or institutional representatives, and three local heritage officers. The final sample size was reached upon completion of the six planned stakeholder categories and the availability of qualified individuals with direct knowledge of or responsibility for the two buildings. Selection was based on demonstrated experience with the campus, heritage documentation, conservation or architectural practice, institutional history, or relevant decision-making. The study did not use statistical sampling or claim saturation; the 22 participants represented the planned information-rich stakeholder groups relevant to the research objectives. Purposive sampling was consistent with the qualitative aim of obtaining information-rich perspectives rather than statistical representation (Patton, 2002). Participant-derived findings are limited to these documented consultations and are not generalized to the wider university community.

Multiple instruments supported methodological triangulation. A final semi-structured, open-ended interview guide elicited participants' accounts of historical significance, architectural character, existing condition, use, institutional meaning, conservation concerns, and technology-assisted interpretation. Its domains followed the study objectives and the Burra Charter sequence of understanding significance before developing policy. A structured, non-invasive observation and heritage-building assessment checklist documented visible building form, spatial configuration, construction, openings, finishes, alterations, deterioration, and environmental exposure. Cultural-mapping forms connected tangible places with narratives, traditions, symbols, patterns of use, and institutional associations. The authenticity checklist operationalized the Nara dimensions by recording, for each building, documentary and observable evidence concerning form and design, materials and substance, use and function, traditions and techniques, location and setting, and spirit and feeling; retained, altered, and uncertain attributes were then compared qualitatively to determine how credibly each building continued to convey its identified significance. Cameras, available architectural drawings, photographs, plans, and other visual records supported documentation. Photogrammetry, LiDAR-assisted scanning, three-dimensional modeling, augmented reality, and QR processes were considered as proposed applications and were not treated as completed or validated data-gathering systems. The documented basis for instrument appropriateness was direct alignment with the study objectives and the cited conservation frameworks.

Following institutional authorization, the researcher coordinated access with the relevant university offices and building custodians. Archival plans, elevations, historical photographs, institutional publications, previous renovation records, and available heritage documents were collected and compared. Historical development timelines were prepared for the two buildings. From April to May 2026, the researcher—a licensed architect and architectural educator—conducted structured, non-invasive site inspections covering visible weathering, coating deterioration, moisture staining or infiltration, cracking, floor and finish wear, aging components, and roof or truss conditions. Observations were documented through field notes and photographs and compared with available architectural and archival records. No structural engineering investigation, invasive testing, or materials testing was conducted; accordingly, the inspection could not establish concealed conditions, structural integrity, or fitness for use.

From April to May 2026, stakeholder consultation was conducted through 22 semi-structured interviews at University of San Agustin department offices and the University Archive and Museum. Participants received information about the study's purpose, procedures, intended outputs, voluntary nature, and confidentiality safeguards. Participant evidence is reported using anonymized codes. Open-ended questions allowed clarification and follow-up. Interview accounts were compared with archival, documentary, architectural, visual, and site evidence; individual recollection was not treated as definitive where other evidence indicated uncertainty. Digital overlays and adaptive-reuse renderings were treated as proposed design and interpretive explorations, not as evidence of implemented physical interventions.

Interview data were explicated using Lichtman's (2013) three-stage process of coding, categorizing, and conceptualizing. The interview records and stakeholder accounts were reviewed together with field notes, archival descriptions, visual observations, and assessment records to identify significant statements and recurring patterns. One traceable analytical pathway began with P4's account of experiencing the buildings successively as a student, faculty member, and administrator. The account was coded as continuity across institutional roles, grouped under institutional memory, and considered with related accounts in interpreting the buildings' cultural and social significance. Other initial codes were grouped into categories concerning cultural and historical value, physical condition and risk, continuing use and adaptation, conservation governance, and visual-technology opportunities. Relationships among these categories were then synthesized into the major themes that informed conservation policies, intervention priorities, implementation responsibilities, and proposed technology-supported interpretation.

Methodological triangulation served as the study's primary credibility safeguard. Interpretations were compared across stakeholder interviews, archival records, site observations, architectural documentation, assessment forms, photographs, plans, field records, and visual materials rather than accepted from any single source. Comparison of the two buildings helped distinguish findings arising from their shared institutional context from those specific to each structure, while recognized conservation criteria made the reasoning from significance to policy explicit. The study does not claim member checking, saturation, peer debriefing, external auditing, or intercoder review. Conclusions were limited to the selected buildings and the evidence available during the investigation.

Prior to implementation, the study underwent internal research ethics evaluation and approval by the Graduate School panel of evaluators. At the time, a separate institutional research ethics review board had not yet been constituted; therefore, the panel itself evaluated the study's compliance with applicable research ethics requirements as part of the proposal review and approval process. The researcher observed participant safeguards throughout the study, including informed consent, voluntary participation, the option to withdraw, and protection of confidential or sensitive information. Interview material was used for academic purposes and presented without unnecessary personal identification. Site work was non-destructive and was organized to avoid damaging fabric or disrupting university operations. Archival and professional contributions were acknowledged. Digital documentation was treated as institutional heritage information requiring controlled stewardship, particularly where records could reveal restricted spaces or where oral histories carried identifiable personal content. The study did not conduct physical alteration or experimental intervention. These procedures supported respect for participants, the institution, and the cultural significance of the buildings.

Results

Archival evidence traced the University of San Agustin's development from its establishment in 1904 through reconstruction, expansion, and modernization. Herrera Hall and Dolse Garcia Hall emerged as enduring markers of these periods. Herrera Hall reflected the postwar growth of the institution and its consolidation as a major educational center, including work associated with Architect-Engineer Benjamin Hilado during its 1965–1966 development. Its prominent massing, balanced composition, rhythmic openings, and continuing administrative role made it one of the campus's most recognizable institutional landmarks. Dolse Garcia Hall represented an earlier and repeatedly adapted layer of campus development. Its classrooms, corridors, and support spaces recorded successive patterns of educational use. Archival plans and photographs showed changes in the buildings and their surroundings, but the structures remained legible within the central academic zone.

The architectural assessment identified retained characteristics that contributed to the campus's visual continuity. These included symmetrical façade organization, arched or articulated openings, masonry and thick-wall construction, shaded corridors and arcades, high ceilings, traditional window proportions, passive ventilation features, decorative details, and spatial arrangements suited to communal institutional use. Herrera Hall displayed a more formal and monumental character associated with administration and public identity. Dolse Garcia Hall presented a more flexible academic character shaped by recurring use and adaptation. In both cases, circulation

spaces and gathering areas continued to support social interaction, while the buildings' scale, orientation, and relationship with adjacent spaces remained recognizable.

The synthesized stakeholder accounts and cultural-mapping records associated the buildings with the university's institutional memory. The reported accounts described them as settings for study, work, administration, religiously informed formation, ceremonies, encounters, and everyday campus life. One long-serving culture-and-arts administrator described experiencing the buildings successively "as a student, first and foremost, then as a faculty, and then as an administrator" (P4), demonstrating how the same heritage spaces carried institutional memory across successive roles and periods. An architecture administrator similarly associated the structures with Unitas because they connect past, present, and future users (P1). Historical significance derived from their relationship to the university's growth and Augustinian educational mission. Architectural and aesthetic significance arose from retained form, detail, material evidence, and campus presence. Educational value emerged from both their continuing functions and their potential to teach architecture, heritage, and institutional history. Social value was evident in intergenerational and institutional attachment among the represented architecture faculty, institutional and religious administrators, and archives and museum personnel. The archivist and curator stated, "I am, in a way, living within these historical spaces" because Herrera Hall continued to accommodate the changing needs of the academic community and the Augustinian friars (P7). Spiritual and symbolic values were linked to the university's Augustinian identity and the values of Unitas, Caritas, and Veritas.

The documentary and non-invasive authenticity assessment indicated that both buildings continued to express their identified heritage significance through different attributes and to varying qualitative degrees. For Herrera Hall, form and design remained recognizable in its principal composition and architectural details; location and setting remained legible within the central campus; use and function continued through its administrative role; and spirit and feeling were reinforced by its symbolic institutional prominence. Materials and substance showed alteration and weathering, while traditions and techniques could be assessed only to the extent documented in available records and visible fabric. For Dolse Garcia Hall, material and design characteristics showed more extensive adaptation, but location and setting, continuing educational use, historical association, spatial memory, and campus relationship remained legible. These building-by-building judgments were derived from documentary evidence, site observation, architectural documentation, and stakeholder accounts. The resulting authenticity conclusions are reported as qualitative judgments structured by the Nara dimensions and supported through cross-source comparison.

Non-invasive site inspections conducted from April to May 2026 by the researcher, a licensed architect and architectural educator, recorded visible surface weathering, faded or deteriorated coatings, moisture-related staining and infiltration, localized cracking, wear to floors and finishes, aging building components, and areas requiring roof or truss attention. Photographs, field notes, and architectural records documented the observed evidence, while stakeholder accounts provided contextual information about recurring maintenance concerns. Moisture pathways and roof or truss concerns require prompt professional diagnosis; localized cracks require baseline recording and monitoring; and weathered coatings, worn finishes, and aging components require planned maintenance following diagnosis of their causes. Because no structural engineering investigation or materials testing was conducted, the study makes no determination of structural integrity or fitness for use.

Alterations reflected the buildings' functional evolution. Contemporary materials and services had been introduced to accommodate administration, teaching, safety, comfort, and changing institutional requirements. Some interventions remained visually integrated, whereas others risked obscuring or replacing significant features if continued without policy guidance. The evidence showed that adaptation had enabled continuing use, but it also revealed the absence of a consistent threshold for acceptable change. The resulting conservation direction was to retain façades, windows, corridors, massing, significant details, and campus relationships while allowing necessary improvements that are compatible, documented, and professionally reviewed.

The study proposed several complementary digital applications, all of which remained conceptual or illustrative rather than validated operational systems. QR-based interpretation was proposed for students, personnel, alumni, and visitors needing guided access to verified historical and architectural content. Markerless augmented reality was proposed for on-site visualization of historical phases, significant features, conditions, and future options. Photogrammetry or LiDAR-assisted scanning was proposed for architects, facilities personnel, and conservation professionals requiring a documented geometric baseline. Three-dimensional models were proposed for condition comparison and non-invasive option testing, while a centralized digital archive was proposed for institutional custodians managing plans, photographs, oral histories, and intervention records. The study produced a conceptual technology framework defining the proposed conservation roles of three-dimensional documentation, augmented reality, QR access, and digital archiving. Its next development phase encompasses technical prototyping, content verification, accessibility assessment, and field validation.

The conceptual augmented-reality environment would organize content into historical, architectural, condition, and future-intervention layers. A history layer would display institutional and building timelines. An architectural layer would identify significant elements and explain their contribution to cultural significance. A condition layer could locate documented deterioration and communicate maintenance priorities without substituting public content for professional diagnosis. A future-overlay layer would visualize proposed conservation or adaptive-reuse options. The Dolse Garcia Hall concept illustrates how a modern addition could first be examined digitally in relation to the existing structure. Such visualization would not authorize construction; it would provide a non-invasive means of examining compatibility, scale, reversibility, and potential effects on significance.

The integrated evidence informed a provisional, researcher-developed Conservation Management Plan. The archival record and retained architectural attributes generated policies for significance documentation and protection of important fabric and spatial relationships. Moisture effects, weathering, cracking, and aging components generated immediate actions for condition mapping, professional diagnosis, monitoring, and preventive maintenance under facilities management with qualified technical advisers. Repeated adaptations and the absence of a consistent threshold for change generated policies for conservation review, compatible use, minimal intervention, reversibility where feasible, material compatibility, and complete intervention records. Fragmented documentary evidence generated a medium-term action for a centralized archive under designated institutional custodians. Stakeholder meanings generated consultation and participation requirements, while the conceptual status of the digital applications generated phased development, content verification, accessibility testing, and technical validation before deployment. Monitoring would use repeatable inspections, photographic points, condition records, intervention logs, archive updates, and scheduled policy review. The study produced the CMP as a research-derived institutional framework. Its progression toward adoption entails institutional consultation, technical assessment, stakeholder validation, formal approval, and periodic revision.

The resulting framework linked physical conservation and visual technology rather than treating them as separate projects. Under the proposed system, a verified digital record would supply a baseline for monitoring and could also support interpretation and instruction. AR and QR systems could extend access without extensive attachment to building fabric, while three-dimensional models could permit comparison of existing condition and proposed change. Documented stakeholder engagement would contribute narratives and values to the statement of significance and educational content. The plan therefore positioned the two buildings as living heritage environments in which continued use, conservation, documentation, teaching, and technological interpretation could operate within one governance system.

Discussion and Analysis

The combined archival, architectural, observational, cultural-mapping, and stakeholder evidence demonstrates that the significance of Herrera Hall and Dolse Garcia Hall cannot be explained solely by age or architectural form. Archival records established their place in university development; architectural and site evidence identified retained and altered attributes; and stakeholder accounts connected the buildings with continuing use, collective memory, educational function, and Augustinian identity. Herrera Hall retained recognizable authenticity in its form, setting, use, historical association, and architectural character. Dolse Garcia Hall showed more extensive material and design adaptation but continued to convey historical association, institutional use, spatial memory, and cultural relevance. These findings support the values-based conservation principle that significance arises through the interaction of physical attributes and cultural meanings (Australia ICOMOS, 2013; Mason, 2002). The authenticity assessment yielded evidence-based qualitative judgments structured by the Nara dimensions.

This interpretation also clarifies why the conservation objective should not be to freeze the buildings at a single date. The archival record showed change, while the reported stakeholder accounts suggested that continuity of use remained central to institutional attachment. Under the Nara framework, use and function, setting, and spirit can contribute to authenticity alongside material and design (ICOMOS, 1994). Herrera Hall's administrative prominence and Dolse Garcia Hall's educational relevance consequently form part of what should be conserved. Removing active functions merely to create an idealized historic appearance could weaken the living associations that make the buildings significant.

The findings showed different degrees and forms of retained authenticity between the two buildings. From this evidence, the proposed conservation policy is that continued use should be accommodated without permitting unrestricted alteration. Herrera Hall's comparatively coherent form, visual composition, and symbolic function indicate a lower tolerance for change in highly significant elements, whereas previously altered or less significant spaces may accommodate carefully designed services and functions. Dolse Garcia Hall's retained associations and spatial memory likewise require changes to remain compatible with the attributes through which its significance is conveyed. A room-by-room and element-by-element significance map is therefore recommended before major renovation.

The condition findings show the practical importance of preventive conservation. Weathered coatings, moisture staining, localized cracks, and aging components are not isolated aesthetic concerns. They can indicate building-envelope failures, drainage problems, corrosion, movement, incompatible materials, or maintenance gaps. Feilden (2003) emphasized that intervention should follow diagnosis and use compatible methods. For the university, this means recording defects consistently, identifying causes, assigning urgency, monitoring change, and documenting every repair. Repainting or patching without resolving moisture pathways would produce a cycle of recurring expense and incremental fabric loss.

Because the study was non-invasive, its structural observations must be interpreted cautiously. Visible cracking or roof alteration can identify a need for investigation but cannot establish concealed structural adequacy. The CMP should require qualified architectural, structural, and material specialists to examine areas of concern before intervention. This distinction is important for scholarly and professional credibility: a visual assessment can prioritize and map risks, but it should not be reported as a comprehensive structural certification. The proposed plan appropriately treats technical diagnosis as an implementation requirement.

The findings also indicate a governance problem rather than only a building problem. Evidence included the absence of a formally adopted CMP, fragmented archival and intervention records, physical alterations undertaken across changing institutional requirements, and stakeholder concerns regarding the protection of significant elements. Without a shared statement of significance and review procedure, individually reasonable maintenance or renovation decisions may cumulatively diminish character. The proposed policy therefore requires conservation review before demolition, replacement, attachment, service installation, façade work, roof modification, or major interior reconfiguration, with records of affected significance, alternatives considered, professional advice, the selected intervention, and resulting documentation.

The findings suggest that a proposed visual-technology system could strengthen governance when used as evidence infrastructure. Three-dimensional documentation could preserve a baseline against which later movement, loss, or alteration is assessed. HBIM demonstrates the potential to associate building elements with materials, historical phases, condition, and intervention records (Murphy et al., 2013). For Herrera Hall and Dolse Garcia Hall, a progressively developed digital model could connect archival plans, photographs, measured surveys, condition observations, repair histories, and significance ratings. Such a system could make institutional knowledge less dependent on scattered files or individual memory.

Augmented reality contributes a different but related benefit: situated interpretation. When a user looks at a building and receives a verified historical or architectural layer, information is connected to the place that gives it meaning. This corresponds with AR's capacity to combine real and virtual information interactively and in spatial registration (Azuma, 1997). In education, the approach can make architectural evolution, construction, conservation, and institutional history accessible without removing learners from the campus context (Billinghurst & Dünser, 2012). QR access broadens participation by providing a structured alternative for users whose devices or digital confidence do not support markerless interaction.

The dual-access model is consequently stronger than dependence on one interface. QR codes are comparatively simple to deploy and can guide first-time users; direct AR offers more seamless exploration where devices and tracking conditions permit. Because both routes access the same curated content, interpretation remains consistent. The system should still provide non-smartphone alternatives, readable web content, captions, transcripts, and multilingual or plain-language material where appropriate. Accessibility must be designed rather than assumed.

A major analytical strength of the proposed framework is its non-invasive character. Digital overlays could display historical phases, concealed information, or proposed additions without reconstructing uncertain features or attaching large amounts of signage to significant surfaces. The Dolse Garcia Hall adaptive-reuse visualization illustrates this prospective function: a proposed addition could be viewed from multiple positions and compared with the building's massing, openings, circulation, and setting before physical commitment. Designers and stakeholders could then discuss potential effects using a shared visual reference. Persuasive renderings, however, must be labeled as proposals and must not substitute for heritage-impact assessment, engineering, code review, or formal approval (ICOMOS, 2022).

Digital content also carries epistemic responsibilities. Reconstructions may combine measured fact, archival evidence, analogy, and design interpretation. The application should disclose which elements are documented, inferred, or proposed. Otherwise, visual realism may give speculative content unjustified authority. The centralized archive should therefore preserve sources, authorship, dates, model versions, uncertainty notes, permissions, and review status. Curatorial responsibility should be assigned to a multidisciplinary group rather than to the software developer alone.

Derived from the social and spiritual dimensions of the findings, the CMP recommends a stakeholder structure for continuing governance. Administrators would contribute authority and resources; facilities personnel, operational knowledge; architects and conservators, technical judgment; archivists, historical evidence; faculty and students, instructional use; religious and institutional leaders, Augustinian identity; alumni, institutional memory and potential support; and cultural agencies, regulatory and professional guidance. This is a proposed governance arrangement rather than a participant finding. Participation is recommended during significance assessment, option development, interpretation, implementation review, and periodic reassessment—not only after decisions have been made.

Sustainability in the proposed plan has material, environmental, financial, cultural, and digital dimensions. Retaining and adapting buildings conserves embodied resources, but environmental upgrades must avoid damage to significant fabric. Preventive maintenance distributes costs and reduces emergency intervention. Continued compatible use sustains social value. Dedicated budgets and assigned responsibilities prevent conservation from depending solely on occasional projects. Digital systems require recurrent maintenance, secure hosting, backups, and migration. The plan is sustainable only if all these responsibilities are incorporated into ordinary institutional governance.

The study's principal contribution is therefore not the addition of technology to a traditional preservation project. It is the proposal of a hybrid management model in which values-based conservation determines what must be protected, physical assessment identifies risks, adaptive reuse sustains compatible function, digital documentation improves evidence, AR and QR systems expand interpretation, and institutional policy coordinates action. Technology is valuable because it can improve precision, reversibility, communication, and access. It becomes counterproductive when it distracts from material care, obscures uncertainty, excludes users, or lacks long-term stewardship.

The findings and proposed plan remain bounded by the study's qualitative and non-invasive design. They do not establish the prevalence of stakeholder views across the entire university population, nor do they provide laboratory or engineering certification of materials and structure. The digital applications remained proposed or illustrative

mechanisms rather than completed, validated, or field-tested systems. The provisional CMP was likewise not formally validated or approved during the study period. Future implementation should therefore include technical surveys, user testing, accessibility evaluation, cost analysis, heritage-impact assessment, multidisciplinary validation, formal institutional review, and periodic reassessment. These limitations do not weaken the need for a CMP; rather, they define the additional evidence required before specific actions.

Conclusion

The study identifies Herrera Hall and Dolse Garcia Hall as culturally significant institutional assets of the University of San Agustin. This conclusion is directly grounded in the authenticity assessment reported in the Results: Herrera Hall retained recognizable form and design, setting, administrative use, historical association, architectural details, and symbolic prominence, whereas Dolse Garcia Hall showed greater material and design adaptation but retained location, setting, educational use, historical association, spatial memory, and campus relationship. Their value therefore resides in both retained architectural and documentary evidence and their continuing educational, administrative, social, and spiritual associations. These authenticity conclusions synthesize the documentary and non-invasive evidence through the Nara dimensions and are presented as qualitative judgments.

Both buildings remain operational, yet observed moisture effects, surface weathering, deteriorated finishes, localized cracking, aging components, and pressure for continuing modernization require coordinated conservation. The absence of a comprehensive management framework creates a risk that short-term repairs and renovations will cumulatively erode significant attributes. Sustainable preservation therefore depends on a formally adopted plan that begins with significance, requires diagnosis before intervention, prioritizes preventive maintenance, guides compatible adaptation, documents change, manages risk, assigns responsibility, secures resources, and includes stakeholders.

Visual technology could strengthen this system without replacing physical conservation. Photogrammetry or LiDAR-assisted documentation could support a verified baseline; digital archives could consolidate institutional evidence; QR-based interpretation could provide guided access to curated content; and augmented reality could communicate historical phases, architectural significance, condition, and proposed interventions in place. These applications were proposed rather than completed or field-tested. Their implementation requires verified content, documented capture standards, professional review, accessibility testing, and long-term digital governance.

The proposed Conservation Management Plan with Visual Technology Integration is a provisional, researcher-developed framework for treating Herrera Hall and Dolse Garcia Hall as living heritage. It was not formally validated or approved during the study period and therefore requires institutional, technical, professional, and stakeholder review before adoption. The framework seeks to balance continuity and change by protecting attributes that carry significance while accommodating compatible institutional use. Its effectiveness will depend less on technological novelty than on professional diagnosis, transparent documentation, sustained institutional commitment, stakeholder stewardship, and periodic review.

Recommendations

As an immediate institutional priority, the University of San Agustin should subject the proposed Conservation Management Plan to multidisciplinary technical review, stakeholder validation, and formal approval, and should establish a heritage-management committee with clear authority, membership, reporting arrangements, and review schedules. The committee should include administration, facilities management, archives, academic units, the Augustinian community, qualified architecture and conservation professionals, students or alumni when appropriate, and relevant cultural agencies. Pending formal adoption, all major interventions affecting Herrera Hall and Dolse Garcia Hall should be reviewed against the statement of significance and documented before approval.

Immediate technical actions should establish a verified baseline record for both buildings through measured drawings, high-resolution photography, condition and significance maps, material descriptions, historical plans, alteration chronology, and a register of previous repairs. Areas showing moisture, cracking, roof or truss concerns, corrosion, or material loss should receive diagnostic assessment by qualified professionals. Monitoring points and repeatable photographic locations should be established so that change can be compared over time.

Immediate to continuing maintenance actions should institutionalize scheduled inspection of roofs, gutters, downpipes, drainage, walls, openings, coatings, plumbing, electrical and mechanical installations, vegetation, and pest or biological activity. Repairs should address causes, use compatible materials and techniques, retain significant fabric, and avoid unnecessary replacement. Emergency and disaster procedures should cover fire, earthquake, typhoon, flooding, water ingress, salvage priorities, documentation, and post-event assessment.

As a medium-term policy action, adaptive reuse and modernization should proceed only when compatible with cultural significance. New services and accessibility or safety improvements should be placed in less significant or previously altered areas whenever feasible. Additions should respect scale, massing, circulation, important views, and the legibility of the historic building. The digitally visualized proposal for Dolse Garcia Hall should undergo heritage-impact assessment, structural and code review, stakeholder consultation, and detailed design evaluation before any physical implementation.

As a medium-term documentation action, the university should establish a centralized digital heritage archive with metadata standards, assigned custodians, access controls, redundant backup, version management, and migration

procedures. Three-dimensional models should record survey method, accuracy, date, authorship, and limitations. Historical reconstructions and future overlays should distinguish documented evidence from inference and proposal, while sensitive building information and identifiable oral histories should remain protected.

As a longer-term implementation action, the AR and QR interpretation system should be developed in phases. A pilot may begin with a limited, verified set of content for the two buildings, followed by usability, accessibility, device-compatibility, learning, and maintenance evaluation. The system should provide browser-based text, captions, transcripts, and printed or guided alternatives. Historians, archivists, conservation professionals, and institutional representatives should review content before publication, and every digital endpoint should have a responsible office and maintenance schedule.

Across all implementation periods, dedicated annual funding should cover preventive care, professional assessment, urgent stabilization, archival management, digital hosting, software maintenance, staff development, and interpretation. The university may explore technical and financial partnerships with the National Commission for Culture and the Arts, the National Historical Commission of the Philippines, local government, professional organizations, alumni, and research or technology partners while retaining institutional control over conservation priorities and data.

As a continuing educational action, heritage education should be integrated into architecture, history, arts, digital media, tourism, engineering, and institutional-formation activities where appropriate. Guided walks, exhibitions, studios, documentation projects, oral-history initiatives, and conservation workshops can turn the campus into a living laboratory, provided that participation is governed to prevent damage to fabric or distribution of unverified information.

Future and longer-term research should conduct detailed structural, material, environmental, and building-services assessments; evaluate user experience and learning outcomes of the AR and QR prototypes; compare the costs and accuracy of photogrammetry, mobile LiDAR, terrestrial scanning, HBIM, and digital-twin approaches; examine accessibility and multilingual interpretation; and assess the long-term effect of the CMP after implementation. Periodic review should update the statement of significance, condition record, policy, and technology platform as new evidence, risks, and institutional needs emerge.

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