



A view of "Smart Heritage" that connects modern innovations to historical antiquity

An urge to integrate our rich cultural history with technology

¹Ar. Vinaykumari Pandey,²Ar. Meera Joy Chatwani,³Ar. Krunal Suthar

¹Student of Master of Urban and Regional Planning, ²Professor and Dean, ³Assistant Professor

¹Institute of Architecture,

¹Hemchandracharya North Gujarat University, Patan, Gujarat, India

Abstract : The INTACH Heritage Academy launched Smart Heritage in 2007 to address the initiative that addresses the preservation of cultural heritage in the era of smart cities by utilizing the development of information and communication technology (ICT). It has begun to be used in a town that has implemented the Smart City concept. Due to the fact that we are moving toward a Smart era where nearly everything is ICT oriented, this article explores whether or not Smart Heritage is applicable to the issue of sustainable cultural historical past in the context of Smart City development alongside the boom of a millennial era.

I. INTRODUCTION

Instead of using technology as a passive smart tool for experiences that are manually curated, Smart Heritage uses automated and self-governing technologies to curate heritage experiences. The future leader in research spanning the fields of technology and heritage will probably be Smart Heritage. The importance of adapting technologies to historical contexts is a key consideration in the development of the modern metropolis. A city where digital technology is embedded across all city functions may be referred to as a smart city. A city can only be intelligent if it keeps its memory and does not forget its past. In a smart city, residents might take part in government as well as the ongoing creation of smarter services, such as those for gaining access to and preserving artistic and cultural treasures. Understanding how local resources and more intelligent, cultured towns and cities can support populations

Supporters of smart tourism contend that technological advancements can improve the development of the industry by addressing issues including carrying capacity, stakeholder management, and community involvement. This study focuses on several SG (smart tourism governance) elements that can be used in historic and cultural tourism locations.

The idea of the "smart cultural heritage program" is to engage institutions, people, and items in conversation digitally. These services are supported by a shared set of essential technologies.

Our understanding of a "smart city" that integrates digital technology into every element of its operational planning has changed since the inception of the smart city mission. The term was first employed as a marketing tactic to create new towns or revitalize cities that adhered to sustainability, livability, and workability goals with clever innovation. A smart city is one where community, federalism, integration, innovation, technology, and convergence are necessary for growth and economic stimulation. Digitalization is one of the major components of a smart city.

Smart behaviour fosters a new social conscience in interpersonal, societal, and economic relationships by preserving memory, refusing to let go of the past, and rebuilding public spaces utilizing the most advanced ICT while offering solutions and tactics that are adapted to the local environment. One of the main themes in the construction of the contemporary city, especially in India, is the application of "best practices" to historical centers of large or small Indian cities with the aim of enhancement and revitalization, in contrast to the current phenomena of abandonment and gentrification that permeate these urban realities.

II. MAXIMUM PARTICIPATION AND SELF-DISCOVERY THROUGH TECHNOLOGY

Smart heritage is focused on embracing more collaborative, interactive approaches in order to expand the alternatives for interpretation, digital curation, and innovation. This involves facilitating public access to cultural data (open). This opens up the possibility of unmatched access to cultural artifacts and experiences across boundaries in a future where consumers of culture are no longer only passive recipients. Our communities and our identities are shaped by cultural legacies. Through initiatives for smart cities that involve sharing our past, it may be feasible to encourage social cohesion, creativity, and tourism. Smart cultural heritage is thus closely related to place identity and community identity through the use of smart technologies, knowledge, and engagement.

III. TECHNOLOGIES THAT FACILITATE

Both smart cities and smart cultural assets have smartness criteria, and these requirements are aligned with new intelligent and contextualized services. According to the literature, these services are often made possible by a collection of crucial technologies that are gaining popularity and are inextricably tied to the adoption of smart developments.

i. Importance of Information technology through networking

Smart-phones, tablets, and any other object or device with built-in sensors capable of relaying data through networks are all part of the vast network of connected devices that make up information technology. These "things" often gather and share data in real-time through networks. As the Internet of Things develops into a global infrastructure of the digital information society, smarter cities are becoming more and more popular.

ii. Cloud-based usage

Cloud computing is the Internet-based delivery of resources for on-demand computing, such as data centers and applications. It offers a dynamic and flexible framework for securely connecting websites, users, and applications as well as for allowing at-scale resource and information exchange. Both the Internet of Things (IoT) and cloud computing increase the efficiency of ordinary tasks. The Internet of Things (IoT) will inevitably generate a lot of data, and cloud computing provides a method to allocate resources in various areas efficiently, making it simpler to access huge amounts of IoT data, for example, via cloud services.

iii. Wireless sensor networks

In a wireless network, sensors are used by autonomous, geographically distributed devices to monitor the physical and environmental conditions in their immediate surroundings. Being a virtual layer via which any computing device can access data about the physical environment makes wireless networks innovative.

IV. ASPECTS OF VISUALIZATION TECHNOLOGIES

The use of visualization is essential for directing the creation of intelligent cultural heritage initiatives and for establishing a physical interface between the user and the underlying, usually invisible technologies. Another significant point is that visualization is a tried-and-true method for enhancing the accessibility and representation of data and knowledge in cultural heritage interpretation. Visualization is important because it enables users to simultaneously analyze a large number of data points in a context-aware environment, representing different digital data kinds regardless of their source. An increasing number of devices, such as tablets and smart-phones, rely on adaptive visualization to improve user experience. Natural user interfaces (NUIs) on these devices allow for touch, swipe, and tap interaction.

Information visualization tools span from simple info-graphics to complex 3D modeling. Data visualization is a key technique that underpins all of these, allowing underlying data or information to be communicated by encoding it as visual objects. A data visualization technique is an info-graphic (information graphic). The process tries to increase difficult data's usability, accessibility, and comprehension. In order to make sense of the data through data analysis and its application to smart services, data visualization will be crucial in smart settings with potentially large amounts of IoT-generated data. Some of the visualization technologies that have recently been linked to clever cultural breakthroughs in this study are 3D visualization, Geo-visualization, and augmented reality.

V. SMART CULTURAL HERITAGE

Urban and historical heritage by including the entire "historical territory" of which it is a part, searching for the "widespread and often dispersed plot of man's traces," and overcoming the customary tendency to grant historical legitimacy, the traditional field of analysis of the physical city and urban redevelopment has expanded from the historical center to the current city overall. This structure must now be classified as "historical territory," which is a comprehensive expression of cultural identity and is therefore subject to an organic intervention strategy in all of its constituent parts.

Intelligent approaches and techniques for the historic city is vital to make the necessary effort to do so since the historical territory issue acts as the fulcrum around which the modern city plan, and in particular, all initiatives capable of expressing a new "idea of city," must be evaluated. . The four pillars of urban identity are recognizability, stratification, quality, and meaning. As such, they require constant interpretation and updating of their meaning because they are static and fixed in time.

Since residents actively participate in the development of more intelligent urban forms within adjacent areas while respecting the preexisting cultural heritage, the Smart concept comes into play from the perspective of this new idea of a city where it serves as a propensity for the best development of the historic city.

Consequently, settlement growth and monopolization find this balance in a perspective of polycentrism based on the creation of new poles of local development, with the goal of coupling. This perspective lays out new forms of territorial development, starting with smart approaches to historical heritage, which emphasize the significance of the city's identity memory as a result of a variety of experiences with urban renewal and revitalization. The "Smart tool" for urban living can be used to counteract the phenomenon of original residents abandoning historical centers (both smaller and bigger centers) following gentrification of the urban reality and to reverse the tendency with reference to phenomena of settlement spread.

Urban environments and public goods with a strong historical context are suitable places to explore augmented reality. In an original experience, the user assumes an active part as the protagonist. Controlling the social and participation aspect of the population is feasible through sharing and coping methods. Urban justice is an interscalar strategy that collaborates well to achieve a common goal, from the territorial network to the intervention on a single building. Still, places can be protected and used for basic territorial rebalancing. The catalyst for an epochal transition can be new technologies and clever interventions.

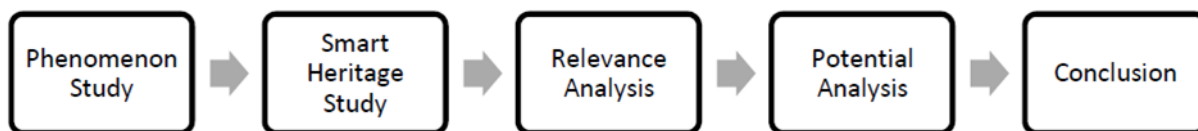
VI. INTERNATIONAL PERCEPTION OF SMART HERITAGE

An internationally used Smart City plan is shown in the diagram above. The six key facets are Smart Economy, Smart Mobility, Smart Security, Smart Education, Smart Living, and Smart Environment. Based on the analysis that has already been done, the author claims that Smart Heritage has the potential to be included in at least four of these six elements. Given that cultural heritage is a built environment or environment that has been there for a while, the first feature that can be merged is the smart environment aspect. The environment created will be consistent with the context thanks to the integration of these factors. Second, the Smart Education component can be used because the community must learn about the cultural heritage's values. The third consideration is the incorporation of smart security to prevent the destruction and extinction of cultural heritage. The fourth one is the smart economy component, which takes into account the fact that cultural heritage with its genuine worth can be an attraction for the larger community, enhancing the tourism sector in order to increase a city's or region's economic output.



Figure 1 Smart City general scheme in the world (deloitte.com)

VII. METHODS THAT CAN BE ADOPTED FOR MAKING HERITAGE SMART



Development through stages, Smart Heritage has the ability to revive cultural heritage and grow and develop alongside cities and people.



Figure 2 Smart Heritage

VIII. SMART STRATEGIES AND SMART WAYS FOR THE HISTORIC CITY

The Smart idea is a propensity for the best development of the historic city because residents actively participate in the creation of more intelligent urban forms. With the help of these new instruments, one may determine the size of the home and any alterations to the historic architecture that is frequently no longer appropriate for modern living. an inter-scale approach that functions in a cogent manner toward a clear and shared aim, from the territorial network to the intervention on the single building. The material conditions will be bettered, but also the resident's and city users' participation in social and political life will increase with the alternative development of the historical centers.

IX. SYSTEMS OF MINOR HISTORICAL CENTERS: FROM THE SMART CITY TO THE SMART TERRITORY

There are other minor historic towns scattered throughout the Indian territory that are exhibiting signs of vulnerability and abandonment. Few centers have kept the life and beauty that have distinguished them over the years while many have turned into ghost towns or enormous, spreading motels. These areas still have the potential to be spared and used for basic territorial balancing. The concept for improving Faenza's historic center blends conventional practices with cutting-edge Smart technology. Through a number of programs, citizens are actively involved in the municipality's and the territory's government's planning and economic decisions.

X. CONCLUSION

A smart heritage agenda is a governance and management instrument for cultural heritage in smart cities. It could start out as a framework for policy but ultimately needs to become a useful instrument. The issues of preserving culture Reviewing the evolution of Smart Heritage is important for the literature because it demonstrates the breadth of the discourse, its range of uses and contexts, and its development over time. Future research between the smart city and heritage disciplines will lead with the Smart Heritage. Heritage in the age of smart cities can be addressed with the help of smart heritage. The suggested Smart approach should focus on a complete administration of the city in line with the Smart City concept, as well as an integrated system of cultural heritage that oversees the rehabilitation of the historical area through restoration work on existing buildings. Therefore, a technological future for these historical cities is not an oxymoron but rather a fresh viewpoint that gathers the strong desire of the populace to reclaim the character of urban living in these ancient cities.

XI. REFERENCES

- [1] Mehta, T., Pilpani, N., 2017, INTACH Heritage Academy. Smart Heritage. September 25th 2018. <http://heritage.intach.org/smart-heritage-think-tank/>
- [2] INTACH Heritage Academy, 2017, Smart heritage in smart city: Pune. December 27th 2017. <http://heritage.intach.org/programmes/smart-heritage-in-smart-city-pune/>
- [3] Mehta, T., Piplani, N., 2017, INTACH Heritage Academy. Smart Heritage. September 25th 2018. <http://heritage.intach.org/smart-heritage-think-tank/>
- UNESCO. (1972). Convention Concerning the Protection of the World Cultural and Natural Heritage. Paris: UNESCO. Available: <https://whc.unesco.org/en/conventiontext/>
- [4] UNESCO 2017, Operational Guidelines for the Implementation of the World Heritage Convention. Available: <https://whc.unesco.org/en/guidelines/>
- [3] Bhatti, U. and Hanif. M. 2010. Validity of Capital Assets Pricing Model.Evidence from KSE-Pakistan.European Journal of Economics, Finance and Administrative Science, 3 (20).
- [5] <https://www.sciencedirect.com/science/article/pii/S2211973621000751>
- [6] <https://pdfs.semanticscholar.org/aa57/707d6b85a8a5de7cb335b4457b2914f75786.pdf>

[7] <https://www.athensjournals.gr/reviews/2022-4830-AJA-PLA.pdf>

[8] Mc Cann P., Ortega-Argiles R., Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy, in Regional Studies 49(8), Pages 1291-1302 (2011)

[9] Navarro De Pablos, F.J., Mosquera Pérez, C. y Cubero Hernández, A.: Ancient Cartographies as a Basis for Geolocation Models in Public Space: The Case of Giambattista Nolli and its Heritage Application. IOP Conference Series: Materials Science and Engineering, 471, 1-9. (2019) [8] Mc Cann P., Ortega-Argiles R., Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy, in Regional Studies 49(8), Pages 1291-1302 (2011)

[10] Petti L, Trillo C, Makore BCN.: Towards a Shared Understanding of the Concept of Heritage in the European Context. Heritage. 2(3) 2531-2544 (2019) <https://doi.org/10.3390/herit-age2030155>

[11] Petti L, Trillo C, Makore BN.: Cultural Heritage and Sustainable Development Targets: A Possible Harmonisation? Insights from the European Perspective. Sustainability. 12(3):926. (2020) <https://doi.org/10.3390/su12030926>

