


Heritage Websites as a Useful Addition to the Planning Toolkit in Singapore

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ABSTRACT

This article analyses the extent to which heritage websites serve as a useful addition to the heritage planning toolkit in Singapore. Drawing on questionnaire surveys and interviews with 26 public servants in Singapore's public planning offices, a group of respondents usually difficult to access, this study reveals how and why this group of planners utilize heritage websites. Using Singapore's prevailing '3R' heritage conservation principle as a metric, this study also explores whether the information on heritage websites addresses heritage planning needs. Implications for heritage website design and use for other countries and the broader planning context are also outlined.

KEYWORDS

conservation principle, heritage planning, heritage websites, planners, Singapore

SECTION ONE: HERITAGE WEBSITES AS HERITAGE PLANNING TOOLS

The integration of information and communications technologies (ICTs) into the urban planning process is a long-standing and continuing trend. Two types of ICTs—software-based and web-based—have been incorporated into the field of urban planning. Geographic Information System (GIS)-based planning support systems and Building Information Modelling are notable examples of the former. On the other hand, web-based ICTs are characterized by the Internet as the access vehicle and encompass social media and mobile ICTs. Another form of web-based ICTs that has the potential to be integrated into urban planning is *heritage websites*, which refer to “digital platforms that document heritage architecture ... [and are developed by] the government and public enthusiasts” (Widodo et al., 2017).

This paper examines the extent to which heritage websites serve as a useful addition to the planners' toolkit to engage in heritage planning, defined as “the application of heritage conservation within the context of planning” (Kalman, 2014). The understanding of heritage conservation has evolved over the years. Originating from nineteenth-century Western contexts, heritage conservation

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was initially “synonymous with preservation”¹ (Blackburn & Tan, 2015), as espoused in early conservation charters (i.e., the 1964 Venice Charter). The 1970s saw the notion of heritage conservation expanded to include management of change, namely sensitive restoration/replacement of historic fabric, particularly in Asia and Africa (Yeo, 2018). The consideration of intangible cultural heritage elements associated with built heritage was subsequently added to the scope of heritage conservation via the Burra Charter drafted in 1979.

Heritage conservation is a vital consideration in strategic spatial planning at the city or national scale because it is not only an instrument of urban regeneration (Pendlebury, 2002) and sustainable development (Dastgerdi & De Luca, 2018) but also contributes to the distinctive character of a country or city, thereby engendering a sense of belonging (*Past, Present, and Future*, 2019). This paper argues that the information on these websites can help planners better understand the significance of built heritage, which, in turn, facilitates successful conservation of these places (Clark, 2001). This paper goes even further to call on planners to utilize existing heritage websites in a structured way and potentially develop these websites into an essential component of the heritage planning toolkit.

This paper aims to examine Singapore’s incorporation of heritage websites into its planning processes by: (a) understanding the patterns and purposes of heritage website use among public servants in public planning offices and (b) uncovering how the information on these websites addresses Singapore’s heritage conservation principle. In doing so, this paper directly answers Van Der Hoeven’s (2018) call for more research on how the content of heritage websites “can be used in applications that give . . . *urban planners* access to historic information about specific locations” (emphasis added) (p. 142).

Considering Singapore’s small geographical size (~728.3 km²), the existence of numerous heritage websites—set up by both government agencies and non-governmental stakeholders—is exceptional. This study focuses on six publicly accessible heritage websites, which include five government websites (see Table 1 for an overview), namely *My Conservation Portal*, *One Historical Map*, *Roots.sg*, *Archives Online*, and *Singapore Memory Portal*, as well as a general category of webpages/blogs² created by non-governmental stakeholders and heritage enthusiasts.

The remainder of this paper is structured across seven sections. The subsequent section looks at the use of web-based ICTs in urban planning before Section 3 delves into studies on heritage planning

Table 1. Overview of five government heritage websites considered in this study

Heritage website	Who is responsible for the website?	When was the website launched?	What content does the website cover?	Heritage website URL
<i>My Conservation Portal</i>	Urban Redevelopment Authority (URA)	2013	Conservation maps, photographs, and guidelines	https://www.ura.gov.sg/conservation-portal/intro
<i>One Historical Map</i>	Singapore Land Authority (SLA)	2015	Street maps and photographs	https://ohm.onemap.sg/
<i>Roots.sg</i>	National Heritage Board (NHB)	2016	Repository of information on national monuments, historic sites, heritage trails, artefacts, and videos/multimedia	https://www.roots.gov.sg/
<i>Archives Online</i>	National Archives of Singapore	2015	Photographs, maps, plans, oral history interviews, and audio-visual recordings	https://www.nas.gov.sg/archivesonline/
<i>Singapore Memory Portal</i>	National Library Board (NLB)	2011	Memories (deposited in the form of texts, audio/video files, images)	https://www.singaporememory.sg/

specifically in the Singapore context, revealing a lack of academic scrutiny of planners' perceptions of heritage website use. Following this, the methodology employed in this study is outlined in Section 4. The first discussion section (Section 5), uncovers patterns and purposes of planners' use of heritage websites. The next discussion section (Section 6) outlines planners' evaluation of the effectiveness of heritage website content in helping them to fulfil Singapore's '3R' heritage conservation principle. This paper concludes by highlighting implications for heritage website design, its use in other countries, and the broader planning context in Section 7, as well as outlining avenues for further research in Section 8.

SECTION TWO: USE OF WEB-BASED ICTS IN URBAN PLANNING

Urban planners have utilized web-based ICTs in the past as tools for disseminating information to stakeholders. For instance, in the United Kingdom, handbooks outlining the procedures and principles for historic building conservation specific to each locality are available for download on the respective local authority's website (Smith, 2006). Likewise, in Ghana, all physical planning officers interviewed by Anaafo and Takyi (2020) shared that they used mobile-based applications to convey the status of development permit applications and circulate information to clients.

In line with the communicative turn in planning, web-based ICTs have also become community engagement platforms (Potts, 2020). In Malaysia, local authority websites are "equipped with interactive capabilities" (Joseph et. al, 2016, p. 12), such as the incorporation of a link to an 'e-suggestions' system to enable the public to provide feedback on the economic, social, and environmental outcomes of the Local Agenda program³ reported on these websites. Planners can use such feedback as a point of reference to understand how their thinking diverges from or converges with public concerns. For instance, Zhao et al.'s (2019) semantic analysis of comments made by the public juxtaposed with those made by architectural professionals on an online discussion forum, revealed differences between the public's and architects' evaluations of the five stadium design proposals in preparation for the 2022 Winter Olympics in the Chinese city of Zhangjiakou. While the public emphasized the building's theme and exterior, architects were more concerned about the spatial layout, design process, and building type. The online discussion forum facilitates the incorporation of public opinion into the corpus of voices heard as part of the Zhangjiakou urban planning process. Likewise, heritage websites also offer planners insights into the public's conservation interests and concerns.

Apart from serving as two-way communication channels between planners and stakeholders, web-based ICTs can also enhance planners' understanding of places. Planners based in Brisbane, Australia recognize the usefulness of crowdsourced data harvested from mobile ICT to inform planning decisions relating to "traffic management," "heritage values," "development assessment," "change of [land] use," and "environmental monitoring" (Houghton et. al., 2014, p. 32). On understanding the community's heritage values, Nummi (2018) notes how stories and memories shared collectively in a Facebook group ('Old Buildings in Sipoo') can assist planners in identifying the intangible cultural heritage associated with built structures in Nikkilä, the administrative center of Sipoo, a municipality within Helsinki, Finland.

Web-based ICTs also contribute to city branding, which seeks to set a city apart from others to appeal to investors, tourists, and its own residents (Björner, 2013), through the construction of urban imaginaries (Greenberg, 2000). The urban imaginary of the city is increasingly linked to "what urban planners communicate as goals and objectives in plan-making" (Bonakdar & Audirac, 2020, p. 4). Local company websites can also have a positive influence on a city's brand, especially in the case of post-industrial cities (Trueman et al., 2012). Recent studies have critically examined the participatory nature of city branding facilitated by web-based ICTs, highlighting the exclusion of certain social groups like minority and disadvantaged groups, as well as those influenced by TikTok, in the digitalized urban imaginary of Xi'an, China (Wang & Deng, 2021). Websites may also simplify the complexities of urban life in migrant-based cities, which is why it is important to

“ensure that the unmediated voices of their citizens determine what makes their city a special place” (Paganoni, 2012, p. 27).

Academics have paid considerable attention to the extent of web-based ICTs’ integration into urban planning processes, particularly in Australia and Ghana. These studies have revealed that successful integration is dependent on (a), the planners’ work environment, and (b), whether the data obtained from web-based ICTs is meaningful and accessible. The first factor determines whether planners have the agency to utilize web-based ICTs at their workplaces. While the planning practitioners employed in Australia’s state and local governments, whom Taylor and Hurley (2015) spoke to, regularly consulted blogs to stay apprised of debates on urban issues; however, rigid planning workflows restricted planners based in Brisbane from doing so also (Houghton et al., 2014). From this research, we conclude planning departments are well-advised to introduce processes that give planners the capacity and scope to apply web-based ICTs to their work. In addition, a joint commitment among various ministries and planning departments to promote the use of web-based ICTs and inter-ministry/department sharing of data can also motivate planners to utilize such ICTs (Joseph, 2010).

The quality of data generated is another determinant of planners’ use of web-based ICTs. For the data outputs to be meaningful, the use of web-based ICTs must be contextualized (Anttiroiko, 2012). For instance, mobile phone-based applications are more effective public engagement tools than web-based applications in Ghana, given the prevalence of mobile data use coupled with low digital literacy among the population (Anafo & Takyi, 2020). These applications, however, should factor in the use of different languages across the 16 Ghanaian regions and allow the public to provide feedback in their native dialect (Anafo & Takyi, 2020). Cross-referencing public inputs with digital databases (e.g., digital property addressing system and national identification system in Ghana) can also boost the relevance of such data to planning work. While web-based ICTs typically generate a significant volume of public feedback, analyzing these inputs can be challenging (Evans-Cowley & Griffin, 2011, as cited in Williamson & Parolin, 2013). Nevertheless, there have been attempts to resolve this challenge, namely Zhao et al.’s (2019) demonstration on how to sieve out professional architectural terms from the online discussion forum via the application of a ‘TextRank’ algorithm.

Lastly remained the issue of how accessible the data generated from web-based ICTs was. Houghton et al. (2014) found that planners based in Brisbane, Australia felt that the data collected from ICT by other organizations in the telecommunications industry was out of their reach. Even when the data was accessible, copyright and use rights issues in the case of social media hindered planners from fully utilizing such data. As Nummi (2018) noted, the restriction against the downloading of data from closed Facebook groups downplayed the value of the collective memories presented on the ‘Old Buildings in Sipoo’ group for the work of urban planners in Sipoo.

To date, studies examining planners’ use of web-based ICTs in the Asian context have been limited. This paper contributes to filling that gap by looking at how planners based in Singapore utilize heritage websites. Singapore’s unique status as a city-state means that heritage conservation, as a planning competency, is centralized at the national scale instead of being devolved to states and regions in Australia and Ghana, respectively. In Singapore, this competency comes under the purview of two statutory boards under the Ministry of National Development: (a), the Urban Redevelopment Authority (URA), and (b), the Housing and Development Board (HDB), therefore explaining this study’s recruitment of planners from these two government agencies.

SECTION THREE: HERITAGE PLANNING AND PLANNERS’ PERCEPTIONS OF HERITAGE WEBSITES IN SINGAPORE

Heritage conservation is a crucial consideration in Singapore’s urban planning process. Apart from the amendment of the Planning Act in 1989 to offer legal protection to historic areas (Yuen, 2011),

the state has also introduced three policy measures, namely the conservation of historic districts, adaptive reuse, and participatory planning. These policy measures have contributed to the embedding of heritage conservation in Singapore's urban planning process. The bulk of research on heritage planning for the city-state has focused on whether these measures have resolved the "countervailing pressures of redevelopment and conservation" (Yeoh & Huang, 1996, p. 411), a tension inherent in heritage planning practice (Coccossis & Nijkamp, 1995; Dastgerdi & De Luca, 2018).

A common theme across the majority of studies that examines the conservation of historic districts is the juxtaposition of the state's viewpoints with public opinions regarding "what constitutes heritage worth conserving" (Kong & Yeoh, 1994, p. 258), the authenticity of conserved areas, and the feasibility of sustaining traditional activities in these areas. The divergence of public opinion from the state's view about what is worthy of conservation is evident from the discontent expressed by several members of the Malay community with the state's omission of a *madrasah*⁴, which they deem to possess of heritage significance, from its demarcation of the Kampong Glam historic district boundary (Yeoh & Huang, 1996). Public concerns over the compromise in authenticity of conserved areas and the feasibility of sustaining traditional activities in these areas are summarized by Leary & McCarthy (2013), who pointed out that the conservation-led urban regeneration of the Singapore River conservation area has threatened "the position of vernacular structures and local street life" (p. 133).

The state/public juxtaposition is also reflected in studies that consider the strategy of adaptive reuse, which refers to "the process of maintaining the external façades of buildings . . . while allowing for major structural and interior modifications to take place in support of new uses" (Muzaini et al., 2013, p. 29).

The application of this strategy in Chinatown, one of the earlier historic districts conserved by the state, received the most public criticism for resulting in the relocation/removal of street hawkers, traditional trades, and old-school eateries (Muzaini et al., 2013; Ting, 2015). Research on participatory planning also highlighted the state/public contrast by looking at whether and how this policy measure bridged the divide between the state and the public. During the 2003 review of the Master Plan (i.e., the statutory land-use plan that guides Singapore's medium-term development), the state "engage[d] the community at the outset of the plan-making process to define identity and places to conserve" (Yuen, 2006, p. 842) instead of restricting public engagement solely to "the [latter] stage of programme implementation" (Jianli, 2014, p. 44). Despite the greater extent of public involvement, the power balance remains tilted in favor of the state as the arbiter of heritage planning. This is best illustrated in the government's firm stand on demolishing the old National Library despite public outcry and extensive public consultation efforts (Jones & Shaw, 2006).

The implementation of participatory planning in Singapore is also facilitated by websites which offer opportunities for non-governmental stakeholders (i.e., the public) to share historical information, stories, and memories. As the former Chief Executive Officer of the National Heritage Board (NHB), Michael Koh (2010), pointed out, "[m]uch of the content [available on the NHB websites, blog sites, and social media pages] is generated not by NHB but by our online visitors and users" (p. 293). Likewise, the *Singapore Memory Portal* is premised on capturing and documenting as much of the memories of everyday Singaporeans as possible (Ting, 2015). However, these studies often stop short of examining *how* planners utilize these public contributions in their heritage planning work.

Apart from crowd-sourced information/public contributions, heritage websites can also contain other information types generated by government agencies. In the Singapore context, other information types include the locations of the 75 national monuments and over 7,200 conserved buildings (see Figure 1) and planning decisions related to conserved buildings on URA's *My Conservation Portal*; historical street maps on Singapore Land Authority's *One Historical Map*; and write-ups/narratives of heritage buildings on NHB's *Roots.sg* portal. Planners represent a specific group of end-users who can benefit from this broad spectrum of information available on heritage websites.

Figure 1. Map showing locations of national monuments and conserved buildings across Singapore (Source: URA SPACE portal)



This paper also seeks to uncover these planners' assessments of the effectiveness of heritage websites as heritage planning tools. To guide their evaluation, this study utilizes Singapore's prevailing '3R' heritage conservation principle: maximum retention, sensitive restoration, and careful repair (URA, 2020), as a metric (i.e., to determine to what extent the information on heritage websites helps guide planners to achieve each of the aspects that make up the '3R' principle). The '3R' principle, formulated in the 1980s, is seen as "a contemporary of the *Burra Charter*" (p. 652), which promotes the "need to understand the historic place and use the information to determine significance before doing anything else" (Kalman, 2014, p. 177).

The questionnaire surveys and interviews carried out with planners in this study are significant as they build on efforts to shift away from the disproportionate emphasis on the state/public dichotomy by elucidating perspectives of other stakeholders. Civil society groups constitute one such stakeholder group. For example, Blackburn and Tan (2015) outline several instances whereby the Friends of Singapore, a non-governmental organization founded in 1937, have successfully advanced its built heritage interests.

Apart from helping to draw up the 1955 list of “Ancient Monuments and Land and Buildings of Architectural and/or Historical Interest,” the Friends of Singapore also assisted the Singapore Improvement Trust’s⁵ efforts to counter profit-driven attempts to de-list a building of heritage significance, the Killiney House at No. 3 Oxley Rise. There has also been a recent resurgence of civil society activism in response to the government’s announcement in 2011 on the proposed redevelopment of Bukit Brown Cemetery (Khiun et al., 2013; Jinali, 2014). Both the Singapore Heritage Society and Nature Society critiqued the government’s lack of consideration of alternative solutions to the proposed redevelopment. To urge the government to do so, Khiun et al. (2013) noted how activists would kickstart discussions on governmental stakeholders’ social media account pages and initiate documentation efforts to re-historicize Bukit Brown Cemetery.

Planners' voices and opinions, however, are oft-neglected. The notorious difficulty of gaining access to and recruiting Singapore government officers as research participants, a point acknowledged by Chang and Pang (2016) and Chang and Mah (2020), is a plausible explanation for this neglect. Hence, our study contributes to filling this literature gap by paying attention to how planners in Singapore utilize heritage websites and their assessments of these websites as heritage planning tools.

SECTION FOUR: ENGAGING PLANNERS— QUESTIONNAIRE SURVEYS AND INTERVIEWS

This study engaged civil servants in Singapore's public planning offices via questionnaire surveys and semi-structured interviews. A total of 26 planners were recruited from three public planning departments: HDB's Research and Planning Group (RPG), URA's Conservation and Urban Design Group (CUDG), and URA's Development Control Group (DCG), via convenience sampling. Of these 26 planners, 16 were from RPG, five were from CUDG, and the remaining five were from DCG.

The questionnaire consisted of 25 open- and closed-ended questions. The first part of the questionnaire mapped the participant's work profile. The second part of the questionnaire uncovered which heritage websites the participant utilized, how they came to know about the predefined and additional websites, and their purposes for using them. The third and final part of the questionnaire invited planners to assess the extent to which information on heritage websites fulfils each component of the '3R' heritage conservation principle.

Follow-up interviews were carried out with six planners, who were recruited from the 26 planners surveyed via convenience sampling. Despite the small interviewee sample size, the interviews allowed us to obtain a greater level of detail in planners' responses regarding the patterns and purposes of their heritage website use, understand the rationale behind planners' assessment of the usefulness of heritage websites to address their heritage planning needs, and identify opportunities for filling of information gaps in heritage websites. In view of the COVID-19 pandemic, the interviews were conducted virtually.

Planners' responses were then cross-referenced with our personal experiences of using the six websites. To distil common themes in planners' questionnaire survey and interview responses, word frequency queries and coding queries were carried out using the NVivo 12 Pro platform.

SECTION FIVE: PATTERNS OF PLANNERS' HERITAGE WEBSITE USE

Despite the absence of official planning guidelines stipulating planners' heritage website use, 25 out of the 26 planners surveyed indicated they do make use of heritage websites in their heritage planning work. The range of heritage websites utilized by our survey respondents is not confined to the six heritage websites predefined above. Five of the 26 planners surveyed also tapped into two resources by the National Library Board: (a) *NewspaperSG*, an online archive of Singapore's newspapers published since 1827 (<https://eresources.nlb.gov.sg/newspapers/>), and (b), *Infopedia*, a digital encyclopedia containing articles on a wide range of topics including but not limited to historical events (<https://eresources.nlb.gov.sg/infopedia/>). Another planner also referred to the *Historical Maps of Singapore* webpage, (<https://libmaps.nus.edu.sg/>), which contains a compilation of street maps of Singapore from 1846 up to present day, operated by the National University of Singapore's Department of Geography.

The two interviewees' sharing of their thought processes behind utilizing these three resources demonstrated their "exercise [of] good critical judgement" in deciding which heritage websites to use (Kalman 2014, p. 182). Doing so is especially important as "[t]he Internet places an onus on the user to filter . . . [the] material" (Taylor & Hurley 2015, 123). The content on *NewspaperSG*, *Infopedia*, and *Historical Maps of Singapore* was deemed by both interviewees to be largely comprehensive because of their perceptions of librarians and academics, who are responsible for managing these websites as *neutral* curators who are more likely to uphold intellectual freedom. This perceived richness in information, in turn, motivates the two interviewees to draw on these resources to supplement and fill in information/time gaps in write-ups on *Roots.sg* and maps showcased on *One Historical Map*, respectively.

Our findings also revealed that planners tend to adopt a structured sequence of heritage website use. The starting point of heritage website use for planners interviewed, irrespective of their agency and department, is similar. Planners tend to start with either *My Conservation Portal* or *One Historical*

Map. Their choice between these two government platforms is dependent on the scale of information needed. *My Conservation Portal* planners use the portal to obtain building-specific information (i.e., checking the conservation status of a building and relevant conservation guidelines pertaining to the building of interest); whereas *One Historical Map*, planners are more concerned with tracking the transformations/development changes to an area. Planners would then proceed to utilize *Roots.sg* and/or *Archives Online* to facilitate their assessment of the heritage significance of a particular building. The write-ups on *Roots.sg* and oral history interviews on *Archives Online* offer insights into the dates, events, personalities/community groups, and people's memories/stories associated with buildings. However, planners expressed reluctance to tap into these write-ups and oral history interviews, citing a common concern over the one-sided nature of the memories/stories conveyed:

Since government agencies are responsible for the presentation and management of the content on [government] websites, I won't be surprised if the stories and memories presented on these websites are censored to protect the government's interests. – (Interviewee #4) (URA)

The authorities in charge of running [government] websites will have the power to dictate how the information is presented. The memories presented on them can become too polished or sanitized, and the richness of these memories is therefore compromised. – (Interviewee #2) (URA)

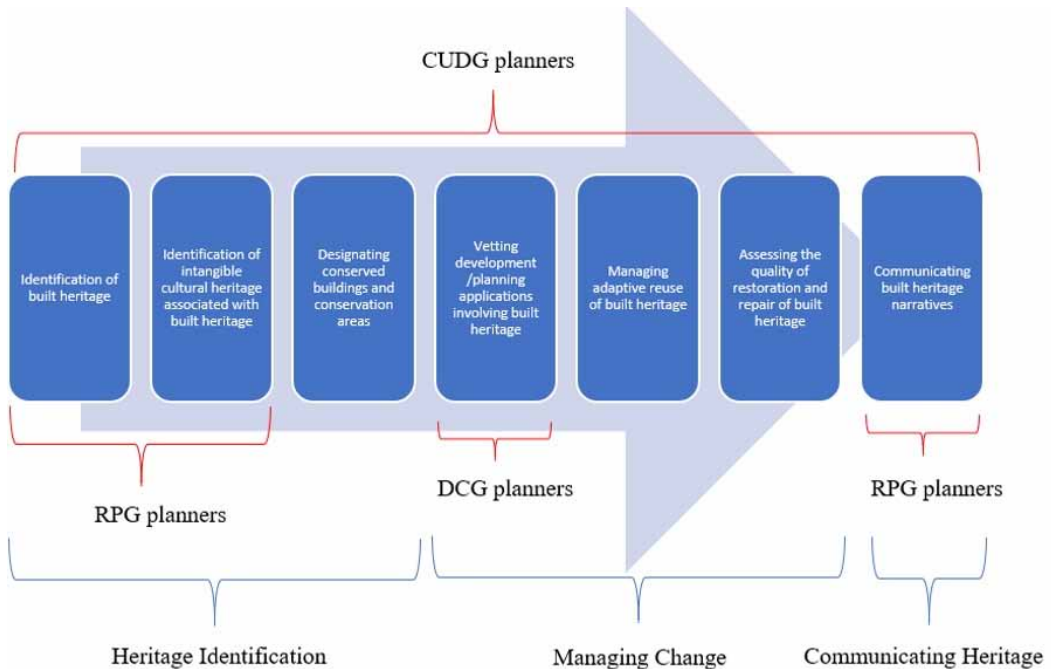
A small handful of the planners surveyed sought to overcome the bias in memories and stories by making additional references to public memory submissions on *Singapore Memory Portal*; whereas, a significantly larger group opted to do so through the use of non-state-affiliated blogs. In explaining their non-use of the *Singapore Memory Portal*, Interviewees #1, #3, #5, and #6 expressed a shared worry that the memories showcased on the portal might have been subjected to some form of state censorship or manipulation because the National Library Board, which operates the portal, is a statutory board of the Ministry of Communications and Information. Their worry is not unsubstantiated, with Khiun and Pang (2015) previously noting that memory submissions on the portal had been “subjected to certain levels of moderation by the authorities ... [to] reflect a certain stability and linearity in the narrative around the Singapore Story” (p. 552; see also Blackburn, 2013).

Non-state-affiliated blogs are, therefore, preferred by planners as a source of place memories/stories as the running of these websites is managed solely by non-governmental stakeholders. Within the category of non-state-affiliated blogs, *The Long and Winding Road*⁶ and *RememberSG*⁷ are the only two blogs utilized by planners surveyed, as they are perceived to be reliable due to: (a) their prominence in the media, (b) their lasting presence on the Web, and (c) the regularly updated, comprehensive information available on these sites.

Furthermore, as reflected in Figure 2, the heritage planning tasks fulfilled by URA and HDB planners' use of heritage websites collectively speaks to the processual understanding of heritage (Harvey, 2001; Smith, 2006) as well as the differentiation between ‘general’ and ‘specialist’ planners.

In exploring how the planners use heritage websites, we can determine first that both CUDG and RPG planners use heritage websites for the upstream heritage planning task of heritage identification to determine the conservation status of a building and identify any intangible cultural heritage elements associated with it. For CUDG planners, heritage website information also facilitates their added decision-making responsibility of designating conserved buildings and conservation areas. Second, in terms of managing change to built heritage, DCG planners turn to heritage websites for the sole purpose of vetting development/planning of applications affecting these structures. Apart from vetting development/planning applications, CUDG planners also utilize heritage websites to frame their management of the adaptive reuse of conserved buildings and evaluations/assessments of the restoration and repair works of these buildings. Third, the information on heritage websites can be a source of inspiration for CUDG and RPG planners to conceptualize heritage narratives for a particular building or area to be conveyed to other stakeholders (i.e., heritage communication).

Figure 2. Mapping of heritage planning tasks to planners' use of heritage websites (Source: Authors' own)



SECTION SIX: SUFFICIENCY OF INFORMATION ON HERITAGE WEBSITES

Regarding the first ‘R’ of the ‘3R’ principle (i.e. “maximum retention”), 17 out of the 25 planners surveyed who use *My Conservation Portal* and/or *Roots.sg*, found the photographs of conserved buildings and national monuments available on these platforms adequate in helping them appreciate the physical structure of built heritage. This sentiment was, however, not shared by the remaining eight planners who use *My Conservation Portal* and/or *Roots.sg*. Their disagreement stems from two opinions: (a) the photographs on these two platforms capture limited views of built heritage, and (b), there is a lack of floor plans for built heritage available on both platforms. In terms of the intangible cultural heritage elements associated with built heritage, only the non-state-affiliated blogs, *Singapore Memory Portal*, and *Roots.sg* are deemed by the majority of planners to sufficiently capture this information. In defending their assessment of the content on *Roots.sg*, all nine respondents point to the inventory of intangible cultural heritage elements prepared by NHB (Teo, 2018).

However, there is a lack of links drawn between built heritage and intangible cultural heritage elements, thereby hindering planners from working toward “maximum retention” of built heritage. Despite having a catalogue of intangible cultural heritage elements on *Roots.sg* and an inventory of heritage places on *My Conservation Portal*, both lists generated by NHB and URA fail to speak to each other. As noted by Interviewees #1 (URA) and #4 (URA), this information gap runs the risk of imparting planners with an incomplete understanding of the implications of proposed developments on intangible cultural heritage practices, which “may be the element that makes the mere bricks and mortar worthy of preservation” (Lee, 2016, p. 11; Udeaja et al., 2020). An attempt to bridge this information gap is evident from the NHB’s plans to conduct a tangible heritage survey, which is supposed to contain “descriptions of intangible heritage located within the [heritage] buildings or sites, including cultural activities, traditional trades, crafts or businesses associated with the building” (NHB, 2016, p. 8). However, at present, the outputs of this survey have not materialized. Considering

that none of the six interviewees flagged NHB's planned survey, there appears to be a broader lack of awareness among planners of NHB's effort to create an inventory that integrates built heritage with its intangible cultural heritage elements.

For the remaining two Rs of the '3R' principle, "sensitive restoration" and "careful repair," the vast majority of our respondents lamented the lack of precision of details on past restoration and repair works of built heritage. Of the 25 planners surveyed who used heritage websites, 17 expressed difficulties in finding out: (a) the number of times a conserved building has undergone restoration and/or repair works, (b), the details of these efforts, specifically which components of the conserved building or area were restored and/or repaired, and (c), the types of materials and methods/techniques deployed.

Although *Roots.sg* contains several write-ups stating which features of built heritage have received alterations and how building owners or developers carried out these alterations, these are only available for a few select buildings. Furthermore, while a planner can determine the number of restoration and/or repair works for a particular building from the chronology of planning decisions listed on *My Conservation Portal*, this estimate might be inaccurate as the timeline provided only consists of planning decisions from the year 2000 through present day. Nevertheless, URA is seeking to rectify this time gap via its ongoing digitization of planning decisions made before the year 2000. The existence of such a time gap is unsurprising considering that most of the restoration efforts were undertaken privately (e.g., Yeo, 2018).

The fostering of a learning culture via the annual Architectural Heritage Awards (AHA) organized by URA represents another attempt towards resolving this issue. The AHA scheme aims "to recognize the best [built heritage restoration and repair] practices in the industry, not just for architects and owners, but also for those in the construction industry, especially engineers, who came up with good conservation techniques and work" (*Past, Present, and Future*, 2019, p. 75). The showcasing of write-ups⁸ for the 139 (and counting) award recipients allows planners, architects, owners, and engineers to draw takeaways from these best practices. However, as Interviewees #2 (URA) and #3 (URA) point out, the AHA write-ups are not integrated into heritage websites. Allowing direct access to the AHA write-ups from heritage websites will likely help bridge the disparity in technical/scientific understanding of "sensitive restoration" and "careful repair" between 'general' and 'specialist' planners.

Another information gap in heritage websites relating to the '3R' heritage conservation principle stems from an underrepresentation of views from non-local, former residents/users of buildings of heritage significance. As Interviewee #1 (URA) notes:

In the case of the Sembawang Naval Base, most, if not all, of the memories of the place showcased in the heritage trail booklet for [the HDB town of] Sembawang on Roots.sg, the Singapore Memory Portal, and on the Long and Winding Road page are provided by Singaporeans. However, there is also a lively Facebook group – 'Old Sembawang Naval Base Nostalgic Lane,' where former British soldiers and workers from India and Indonesia stationed at the base have shared their stories of life on the base. It will be useful to weigh these stories against Singaporean memories to have a more holistic understanding of the place's heritage significance.

This quotation lends weight to Van Der Hoeven's (2019) suggestion that "social media are a rich source of heritage content that could be used to assess how people identify with places" (p. 67). For the Sembawang Naval Base example, if both sets of memories of former British soldiers and workers from India and Indonesia and Singaporeans attached to the base do not convey "dark side values," which "underlie justifications for the destruction of cultural heritage" (McClelland et al. 2013, p. 585), planners can gather them as evidence to strengthen their case for conserving the building. Utilizing heritage websites in tandem with social media can also offer planners insights into how people (re)shape their relationship to a particular building while

coming to acknowledge the differences in their place memories as well as how “previously unacknowledged complementary interests and affinities are forged in shared practices of social memory” (Giaccardi, 2012, p. 90).

The consideration of inputs from non-local, former residents/users of built heritage can also reveal lesser-known place narratives associated with built heritage. For instance, stories recounted by non-local captives of the Japanese during the Second World War exposes the “adaptive ‘abuse’ of [several conserved] colonial buildings [in Singapore]” (Pieris, 2018, p. 370). Even though the “[w]artime changes were not as legible in the architectural expression of the extant buildings,” these buildings still suffered from “[m]aterial dereliction and overcrowding.” Being mindful of this misappropriation of colonial buildings and wartime experiences of former prisoners of war in these buildings facilitates a need for even more sensitive restoration works. Therefore, planners should be conscious of the “different meanings [conveyed by built heritage] to different groups of people” (Tweed & Sutherland, 2007, p. 65) when planning for conserved buildings or areas that have been subject to foreign, colonial, and wartime influences.

All six planners who were interviewed agreed heritage websites should fundamentally display links to social media group pages or blogs/webpages dedicated to showcasing memories and stories from *all* residents/users (both former and present) of built heritage to bridge this information gap. Doing so will also allow planners to leverage past and ongoing attempts by heritage activists to re-historicize buildings and places of heritage significance, as highlighted in Section 3, in determining the extent of application of the ‘3R’ conservation principle.

SECTION SEVEN: TAKEAWAYS FOR OTHER COUNTRIES AND PLANNING CONTEXT

The Singapore case study offers several takeaways on heritage website use for planning authorities and planners in other countries. Planning authorities should break down any silo mentalities by organizing inter-agency/cross-departmental knowledge-sharing sessions. These sessions will prevent related data outputs (e.g., the catalogue of intangible cultural heritage elements on *Roots.sg*, inventory of heritage places on *My Conservation Portal*, and NHB’s tangible heritage survey) from being treated as mutually exclusive. Planners can also leverage such platforms to share good practices (i.e., the sequence of use and information extraction techniques) in utilizing heritage websites and any supplementary online resources.

Planners themselves need to recognize that heritage websites can be a valuable addition to their heritage planning toolkit, which may include other components, namely on-site visits, historical maps, and archival/library references. They also need to be critical of the information represented on heritage websites. Apart from cross-referencing the factual details presented on heritage websites with other credible information sources to fill any information gaps, planners should also consult websites created by both governmental and non-governmental stakeholders to obtain the broadest spectrum of memories and stories available. Doing so will avoid bias resulting from the authorities’ censorship and moderation of people’s stories and memories (as seen in the case of Singapore) and give planners a “scope for problematizing heritage values” (McClelland, et al. 2013, p. 597). Planners should also consciously draw connections between built heritage and the associated intangible cultural heritage elements. Establishing such links is particularly relevant for countries with colonial heritage architecture (i.e., most Southeast Asian nations). To do so, planners need to pay attention to narratives put forth by non-local, former residents/users of these buildings. Considering these views is significant for heritage value assessment as these buildings are likely to “compris[e] multiple international, national, local or even individual patrimonies” (Parkinson et al., 2015, p. 293).

SECTION EIGHT: FUTURE AVENUES OF RESEARCH

This paper has promoted the notion of heritage websites as a useful addition to the heritage planning toolkit, and we argue that these websites constitute a form of “modern technology [that is necessary] to keep the process of heritage conservation relevant and broadminded” (*Past, Present, and Future*, 2019, p. 122).

Future research needs to recognize the specificity of heritage websites at a national level being discussed in this study. This paper discusses the importance of planners being conscious of the possible existence of heritage websites containing information oriented toward other scales. For instance, in Singapore, the “interactive map filled with stories from residents, their old photos, and oral history interviews” currently being developed by civic group My Community is specific to the HDB town of Queenstown (Zaccheus, 2018). In other contexts, such as Canada, the Durand Built Heritage Inventory examined by Angel et al. (2017), is a heritage website focused on the Durand neighborhood in the city of Hamilton. Follow-up lines of enquiry would involve exploring how the narratives and representations on regional-level, city-wide, and neighborhood-specific heritage websites are aligned with or conflict with national discourse and how local governments can be supported in using websites more consistently or encourage the development of heritage websites for citizens to upload information in an easily accessible manner.

Future studies could also explore how other groups of planners not considered in this study (e.g., private sector planners) have utilized heritage websites and assess whether these heritage websites fulfil their heritage planning needs as well.

AUTHOR'S NOTE

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ENDNOTES

- ¹ Preservation refers to the maximum possible retention of a building's historic fabric.
- ² Examples of webpages/blogs include, but are not limited to, 'The Long and Winding Road' (<https://thelongwindingroad.wordpress.com/>); 'RememberSG' (<https://remembersingapore.org/>); 'Singapura Stories' (<http://singapurastories.com/>); 'Good Morning Yesterday' (<http://goodmorningyesterday.blogspot.com/>), and 'Tiong Bahru Estate' (<https://tiongbahruestate.blogspot.com/>).
- ³ Intended to translate sustainable development principles and objectives into practical action at the local level.
- ⁴ An Islamic religious school
- ⁵ Singapore's colonial urban planning agency
- ⁶ <https://thelongwindingroad.wordpress.com/>
- ⁷ <https://remembersingapore.org/>
- ⁸ See <https://www.ur.gov.sg/Corporate/Get-Involved/Conserve-Built-Heritage/Architectural-Heritage-Season/Architectural-Heritage-Awards>.