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Conceptualizing a Methodology for Cultural Heritage Futures: Using Futurist Hindsight to Make 'Known Unknowns' Knowable

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Abstract: In a broad conceptual framing, cultural heritage is the result of humankind's interactions with their environment and one another, both in its tangible and intangible expressions. Cultural heritage management is by nature a retrospective discipline, as the assessment and evaluation of cultural significance of heritage assets requires the passage of time. Practitioners often struggle with the evaluation and management of very modern and contemporary heritage items. There is a need to examine whether current approaches and practices are fit for purpose. Current cultural heritage theory abounds with the concept of heritage stewardship with the embedded futurist stance that we should hand on our heritage in good shape to the next generation, yet all approaches are retrospective and rooted in the values of the present. This paper examines to what extent stewardship, as well as two other futurist concepts, the precautionary principle and strategic foresight, are suitable tools for heritage management. Based on that review, this paper then conceptualizes and proposes an assessment model that positions the valuer into a strategic foresight-derived, modelled future 'reality' at a 15 to 30-year horizon, which then allows the valuer to apply standard heritage hindsight assessment methodology to contemporary heritage items.

Keywords: future studies; strategic foresight; stewardship; precautionary principle; cultural heritage management; modern architecture; environmental ethics; heritage futures

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> "there are known knowns . . .
> we also know there are known unknowns . . .
> but there are also unknown unknowns . . . "
> (Donald Rumsfeld 2002) [1]

1. Introduction

Heritage Futures has become a term occasionally used by the heritage profession to demonstrate a sense of progressive stance. Common among the cultural heritage management (in the U.S.A., 'historic preservation') phraseology is the notion that we are 'preserving [conserving] the past for the future' and variations of that theme, e.g., 'for our children,' 'for generations to come', etc. [2]. It would appear that the rhetoric has become so pervasive that it is not examined or questioned. But how are futurist concepts applied in cultural heritage management, if they are applied at all?

Some conceptual work has been carried out looking at the relationship between heritage and future studies, primarily conceptualizing the role that heritage might play in future communities and how heritage can assist the understanding of future realities [3,4].

This paper will first set out the conceptual framing of cultural heritage management as commonly understood and practiced, and based on this, will examine three futurist concepts and their applicability to cultural heritage management: stewardship; the precautionary principle; and strategic foresight. It will show that current cultural heritage practice, as determined by applicable criteria and processes, does not do justice to cultural heritage places with emerging and as yet unproven, but predictable, heritage values, and that a paradigm shift to a strategic foresight-driven approach is required. It will then advance

an assessment model that positions the valuer into a strategic foresight-derived, modelled future 'reality,' which then allows the valuer to apply standard heritage hindsight-based assessment methodology to contemporary heritage items.

Thus, this essay does not follow the standard IMRAD pattern of academic writing (introduction, methods, results and analysis, discussion). While it draws on examples from the Australian setting, the discussed concepts have global applicability.

2. Contextualization

In a broad conceptual framing, cultural heritage is the result of humankind's interactions with their environment and one another. The outcome of these processes is reflected in a number of forms and is generally divided into tangible and intangible cultural heritage [5].

Well cognizant that intangible aspects of heritage make up the overwhelming majority of cultural expression in the daily life of humankind [5–9], that intangible heritage is increasingly considered worthy of protection by international and national heritage bodies [10,11], and that, indeed, the very values that underpin and create 'heritage' are intangible human constructs [12,13], this paper will focus on the *tangible* elements, in particular the built environment, sites, places and cultural landscapes, and to a lesser degree on objects. These can be readily managed and maintained through administrative processes. On the other hand, the intangible components, such as language, folklore, skills and customs, as well as the values attached to tangible heritage places, can only be maintained through continued personal agency, initiative and engagement that may be fostered by community support [14,15] and further enabled by legislative frameworks (e.g., Luxembourg [10]).

The broader community, from local to international, ascribes values of varied strength and importance to the *tangible* expressions of cultural heritage. Using formalized processes, and standards such as Australia ICOMOS Burra Charter or the U.S. Secretary of the Interior Standards, heritage managers assess the values of cultural heritage places ascribed by the public against predetermined criteria to determine their wider significance [13,16–18]. Conservation ('preservation' in the U.S.A.) theory holds that this process enables important aspects of the past, once identified and assessed as culturally significant, to be protected and managed for the benefit of present and future generations [6,19]. In the intangible realm, documents like the Convention for the Safeguarding of Intangible Cultural Heritage come into play [11].

During the past decade, discussion of cultural heritage values moved from the purely historical and architectural layers of cultural significance [20,21] to an increased appreciation of the fact that social and community values underpin all heritage [6,12,13,22,23]. Because cultural heritage, as well as values in general, are human constructs, the values that underpin and circumscribe what people define as heritage are purely human projections onto an essentially value-free animate or inanimate world [24]. Even the 'existence value' as described in the Australian Natural Heritage Charter [25] and advocated by several animal and environmental ethicists [26,27], is essentially an anthropocentrically derived and projected concept.

Subjective valuation, revaluation and ultimately, prioritization of various aspects of a person's personal, physical and social environment occur consciously and subconsciously on a continual basis. If a choice has to be made between two options, the majority of individuals tend to be prepared to 'trade-off' one option and one associated value against another. Just as an individual's values underpin the personal value assessment, the congruence of individual values results in values held by communities. As with all values, cultural heritage values are variable between communities, as well as between socio-economic layers within a community. Moreover, as mutable qualities, values change both in intensity of conviction and over time, due to shifting baselines [24], thereby creating a semi-fluid state in cultural heritage assessments [14]. This fluidity of projected values, both on an individual and a collective level, with a continuously shifting ground, needs to be acknowledged by cultural heritage managers [23,28].

The central figure in such valuations is the individual, whether as a member of the general public making their opinions known (either ideologically self-determined or embedded in and defined by the social and cultural value framework of the community) or in a recognized position of authority in the form of a heritage manager (who themselves are embedded in the social and cultural value framework of their spatial and professional communities [28]).

The central generation for all such valuations, and for which heritage is relevant from a social, cultural and also mental health perspective, is the present generation [15,29,30].

Contextualization: Current Processes

The current process on the conservation management of tangible heritage properties, as set out in the Australia ICOMOS Burra Charter [16] and similar instruments and as enshrined in various state legislation and regulations, is to determine the value of a heritage asset in terms of its aesthetic, scientific, historic and social values, and to derive from these a statement of cultural significance. In the Australian setting, in addition to criteria for the assessment of significance published by the Australian Heritage Council [17,31], various states of Australia have developed their own criteria [32–35]. Once significance has been determined, all future management of a given heritage asset must pay due regard to the maintenance and protection of the significance of the asset [6,16]. Once an asset has been identified as significant, well-established and proven processes for the management and protection of the asset can be invoked.

Common to all approaches, however, is that the significance assessment is retrospective. This holds particularly true for the assessment of historical value [6], but also of scientific value and, to a lesser degree, for social value [22]. The assessment of the latter value has its own problems [13]. Common to all, however, is that a period of time must have elapsed for a site, place or object to be regarded as 'heritage' and to assess the cultural significance of this heritage asset. Under the authorized heritage discourse [36], not only does this provide some modicum of emotive distance between the asset and the lived reality of the assessor, but it also allows to answer some questions: was the historic event significant in the greater scheme for the development of the local community/state/nation? Does the asset have lasting social value to the community or is it just a contemporary fashion that will fade? Can the asset explain something no other asset can?

If the elapsed passage of time is short, however, then the cultural heritage profession struggles with the formal recognition of very contemporary architecture and other developments as present or future cultural heritage. DOCOMOMO, founded in 1990, sought to "bring the significance of the architecture of the Modern Movement to the attention of the public" (Eindhoven Statement) [37]. While the conversation about Modernist places is well under way, the chronological baselines have shifted and the Modernist is now well and truly in the readily 'evaluable' past.

Concepts like 'reactance heritage', where cultural resources (irrespective of construction date) facing imminent risk of destruction can be perceived by the community as heritage worthy of preservation and protection from demolition [30] are still based on a community's perception of assets as heritage, which are based on elapsed time.

The standard recognition of very contemporary architecture and other developments is made more complicated in many cases as the original architect of a structure may still be alive, who can claim moral or intellectual ownership and thus an involvement in the process [38]. Concerns may be expressed that this presence may skew the outcome of the evaluation.

Indeed, the cultural heritage laws of some countries require that a certain time must have elapsed before a property may be deemed eligible for inclusion in official heritage lists. The U.S. Historic Preservation Act springs to mind with its 50-year rule (but is not the only example), where the justifications for exceptions to this rule are very complicated [39,40]. While in the U.S.A. the debate has commenced on finding ways to recognize late twentieth century cultural heritage under the existing framework [41,42], the legal structure in place

is such that unless an extremely compelling argument can be made, the property will not be listed and thus protected [43].

Australian practitioners will point out that the situation in Australia is much less restrictive, as Australian heritage laws do not have a prescribed time threshold. They tend to point to prominent examples such as the Sydney Opera House or the Rose Seidler House. Yet, upon closer examination, even in these examples, considerable time had elapsed until their listing. The first performance at the Sydney Opera House took place in September 1973, after it had already attracted extensive public attention both nationally and internationally, yet despite its iconographic status for Sydney and NSW, if not for Australia as a whole, the property was not listed on the NSW State Register until 30 years later (December 2003; NSW State Heritage Register n° 1685). The Rose Seidler House, a key example of Modernist architecture in Australia, was completed in 1950 and not entered in the State Register until almost 50 years later (April 1999; NSW State Heritage Register n° 261).

The time thresholds in other countries are more fluid, but still constrained by the conceptual framing of 'heritage.' New forms of heritage are continually being recognized, with industrial heritage and industrial archeology being a case in point and now considered a mainstream pursuit [44–46]. Yet at the same time, discussions by the author with German state heritage conservators (in 2014) about the necessity to consider the cultural heritage values of the German nuclear power plants (Figure 1) that were being slated for decommissioning, for example, were met with a complete lack of conceptual understanding.

Figure 1. Nuclear Powerplant Gundremmingen, Germany (Photo Dirk HR Spennemann. August 2014).

The reality is that the more recent sites, places, buildings and objects are, the less likely it is that they will be identified as potential future heritage assets. This is applicable despite the fact that some properties may have instant, and lasting, heritage value. The strongest example comes from the U.S. space program. The moment Neil Armstrong stepped onto the surface of the Moon on 21 July 1969, the sites associated with that space mission were of the highest cultural heritage significance. There would only ever be one first moon mission, one first event of a human stepping onto another celestial body [47]. Yet under the application of the heritage criteria and using the existing processes, at the time, the sites associated with that event were not considered to be worthy of protection. It took thirty years of retrospectivity to ensure that these sites were being considered—and even then there was still a great deal of inaction [48–50]. Other, similar heritage sites are not even considered outside academic circles [51–54].

The problems inherent in the recognition of modern and emergent heritage items are probably due to subconscious biases of the practitioners: a conceptual bias derived from the perception of heritage as something imbued with the patina of age rather than personal lived experience, and a cognitive bias that favors architectural assets over technological ones, industrial heritage concepts notwithstanding—for example, the Radio Telescope at Parkes (NSW) was not listed on any of the registers until 2020, even though the facility played an instrumental role in all Apollo missions to the Moon and has been the focus of several significant astronomical discoveries [55–58]. The available literature on the attitudes of heritage managers is limited [59], and the issue of subconscious bias needs to be the focus of further consideration [28].

Given the problems with current approaches to the assessment of recent heritage, it is not surprising that practitioners give little thought to the conservation of emergent heritage: those places that captured public attention, such as the Australian Immigration Reception and Processing Centre from the early 2000s at Woomera (November 1999–April 2003) or Baxter (September 2002–August 2007) (Figure 2) [60,61], or places that are indicative of new trends in architecture (such as the Charles Sturt University rammed earth campus in Albury NSW) or sites associated with the COVID-19 pandemic (Figure 3) [62]. In the absence of a heritage listing and a protection regime derived therefrom, it is up to the property's owner to realize its potential heritage value and to engage in self-censorship of actions that may impair the integrity of those cultural heritage values that make the place significant. Given that most assets still in use are commercial propositions, and given that heritage conservation is frequently seen as an impost, there is generally little incentive for the owner to advocate for listings. By the time the heritage value of such assets has been realized and formally assessed in a generation's time (using the well-established techniques), it may well be too late and much of the potentially significant fabric may have been irreversibly impaired or even demolished.

If the current approaches to heritage management are failing the properties with emergent heritage values, we need to ask whether there are other approaches that can be drawn on.

Figure 2. Satellite view of the former Baxter Immigration Reception and Processing Centre located in the grounds of the El Alamein Army Camp near Port Augusta (SA) (Image: GoogleEarth 2022).

(**a**)

Figure 3. *Cont.*

(**b**) (**c**)

Figure 3. Emergent, yet ephemeral heritage places. COVID-19 testing station at Hornsby, NSW. (**a**) general view of layout with testing bay, storage container, toilet and waste facility; (**b**) testing bay showing temporary construction; (**c**) interior of testing bay (Photo Dirk HR Spennemann, June 2021), [62].

3. Conceptualization: Theoretical Foundations

The remainder of this paper will look at three theoretical frameworks that may be applied to the management of cultural resources: the concept of stewardship, which has already gained some traction in cultural heritage management; the role and applicability of the precautionary principle in decision making for cultural heritage assets, and the potential role of strategic foresight in the making of heritage policy. This discussion will then lay the foundations for the proposal of an alternative, novel methodology.

3.1. Stewardship

Cultural heritage management, particularly in the U.S.A., has appropriated the terminology of 'stewardship' from the arena of natural resource management, with the term prominently used in the title of the now defunct U.S. National Park Service flagship journal *CRM–The Journal of Heritage Stewardship* (2003–2010). In the natural environment, the term *stewardship* encompasses the concept that natural resources have been here for a very long time, well before the advent of people, and that each generation of people is entrusted with the management of this environment in such a way that it can be handed on to the next generation in the same, but ideally, in a better state than it was found [63,64]. Implicit in this framing is the underlying notion of the interdependency of human existence and the natural environment in which the former is grounded. By that notion, we are not owners of the land, but mere custodians and stewards. [63] Although not explicitly addressed as such, the concept of stewardship owes much to the understanding of Indigenous Australian communities or their relationship to and identification with Country.

While the ecological meshing of natural environment and human existence can easily be demonstrated, we need to question whether the same concept can be uncritically applied to the cultural environment.

In an essay for *CRM—The Journal of Heritage Stewardship*, David Lowenthal explored the futurist arguments for stewardship in historic preservation, outlining that the motivations for the futurist stance can be ethical (ensuring to pass on as good or better than we have now); conscientious (not wishing to be seen as despoilers); familial (wishing that our grandchildren will inhabit a beneficial world) and pragmatic (intergenerational justice) [65]. Lowenthal traces the development of the futurist stance of stewardship, arguing that, while

cultural heritage and nostalgia have been a refuge for the present generation to escape the fears of the future, we should not ignore the future but rather shape it [65].

While Morris proclaimed "[s]tewardship of the cultural heritage [to be] a mark of a civilized society", [66] Bonnici, in his keynote address on sustainable heritage management noted that "[t]he stewardship of the cultural heritage is a collective obligation of the present toward future generations" [67]. The term 'stewardship for cultural heritage' has almost become synonymous with 'cultural heritage management' if one considers the application of the phraseology in the United Kingdom [68], the United States (see subtitle of *CRM*), Norway [69] and the Philippines [70].

There is an abundance of rhetoric that claims that we are 'preserving the past for the future' [2]. However, any assumption that we preserve places for future generations to enjoy is without foundation: we can influence, but simply cannot *predict* the values that may be held by our children in the future, let alone the values that may be held by their children. We can take it for granted that we will stand accused by future generations of inappropriately, or at best, ineptly managing our present and thus *their* past, just as much as we criticize the actions of the generations that went before us, deploring environmental degradation or the loss of building fabric. We may well stand accused by future generations that through preserving, if not actively shaping, the past according to our present values, we have constrained any choices a future cultural heritage manager may be able to have on offer; that through the conservation actions (and non-actions) we are taking today, we are in fact saddling the future with *our* perception(s) of the past [29].

The rationale for the preservation of our past and the conservation of cultural heritage—that we are doing so in an altruistic fashion for the benefit of future generations—can no longer stand up. We have to face up to the reality that we are doing this for the present, essentially preserving the past for our own benefit, that we are preserving the past for *ourselves* [29].

In summation, the concept of stewardship entails a moral obligation by the present generation to hand on its heritage in as good or better a state to the next generation based on ethical, conscientious or familial motivations. From a cultural heritage management perspective, however, stewardship can always only be retrospective, recognizing properties as heritage and thus worthy of protection, and then ensuring that these properties stand a good chance of being preserved for the next generation. Even though futurist in its roots, stewardship is a reactionary construct. While it may assure that identified and evaluated heritage has a future, stewardship does not advance the management of emergent and future heritage places.

3.2. The Precautionary Principle

A second potential methodology to identify emergent and future heritage is the precautionary principle. Like stewardship, the concept of the precautionary principle is also derived from environmental management and commonly applied in that arena. The roots of the precautionary principle can be traced to 1971, when the concept of 'Vorsorgeprinzip' was first articulated as one of three central principles for the first (then West) German environmental protection program, together with the 'Verursacherprinzip' [polluter pays principle] and the 'Kooperationsprinzip' [co-operation principle] [71–73]. Since then, the precautionary principle has found its way into a series of environmental treaties and national legislation [74,75], and from there into the wider scientific community, including public health and information technology [76]. As there is no single clear and universally agreed upon definition of the precautionary principle, the following definition drawn from the Rio Declaration on Environment and Development may suffice, which also forms the basis of formulations used by many government agencies in Australia:

> "*In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing*

> *cost-effective measures to prevent environmental degradation*" (principle 15 of the Rio Declaration). [77]

Given the potential for open-ended and ambit claims under the precautionary principle and the criticism levelled at the underlying concept derived from this [78], the European Union, which adopted the principle as the basis for European environmental law in the Treaty of Europe (1992), circumscribed the application of the precautionary principle through the following prescription:

> "*Where action is deemed necessary, measures based on the precautionary principle should be, inter alia: proportional to the chosen level of protection; non-discriminatory in their application; consistent with similar measures already taken; based on an examination of the potential benefits and costs of action or lack of action (including, where appropriate and feasible, an economic cost/benefit analysis); subject to review, in the light of new scientific data, and capable of assigning responsibility for producing the scientific evidence necessary for a more comprehensive risk assessment*". [79]

While rooted in and derived from environmental management, the precautionary principle and an ethical concept [80] has also been applied to areas of public health [81,82], nanotechnology [83], artificial intelligence [84] and future technologies more generally [85]. Its potential application as a methodology to identify emergent and future heritage is a mere extension of this work.

Donald Rumsfeld, in a 2002 U.S. Department of Defense press conference on the suspected presence of weapons of mass destruction in Iraq, alluded to a variation to the Johari window [86,87] when he famously stated "*because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know*" [1]. In the context of this discussion, stewardship addresses the 'known knowns', while the precautionary principle takes into account the 'known unknowns. But this is still limiting, as again, the key limitation of the precautionary principle for its applicability to cultural heritage management is that it is largely reactionary.

While the concept allows for a decision affecting a heritage asset to be placed in abeyance until such time as the required information on its impact could be researched, any application of the principle presupposes, as von Gleich noted, that the risks are known (albeit not proven or quantified), or that threats are at least suspected [88]. In the ideal world, the precautionary principle should also be proactive and posit careful action in areas where the knowledge of potential side effects is so scant that a formal risk assessment is impossible. It is that part which has come under concentrated attack by a range of authors arguing that an application would stifle innovation and economic development [66,89].

In the Australian natural heritage setting, the precautionary principle has seen recognition in case law and later in the Australian Natural Heritage Charter, which clearly separates natural from cultural values [25].

The Precautionary Principle and Cultural Heritage Management

If we ignore the language of international organizations [90], there seems to be little information on the application of the precautionary principle to cultural heritage. The only area where the precautionary principle is applied in cultural heritage management is in the area of physical conservation techniques, where it has long been realized that many modern treatments may have unforeseeable detrimental side effects in the long term [18,91].

The absence of an application of the precautionary principle to cultural heritage is not really surprising, as cultural heritage management is both a retrospective discipline and one that is prone to make absolutist statements. The nature of heritage registers, with fixed, albeit subjectively interpreted, thresholds, lends itself to absolutist and exclusivist decisions being made.

While there is a notion that the thresholds have objective bases, this is a fallacy, as all valuations, carried out by assessors on their own or as a small group, are ultimately subjec-

tive. It is merely the bandwidth of subjectivity that can be curtailed. By the application of thresholds [13,23], a place is evaluated and then labelled either culturally significant or not.

The precautionary principle has not found much application in the cultural heritage field, because in case of doubt, heritage studies are being carried out and 'certainty' is achieved—usually within a short time frame. For example, once threats to a site emanate or are suspected, the register information is called on and used for decision making. There is the unspoken underlying assumption that there is no need for further research to assess whether the initial assumption leading to the nomination was correct or not. Re(e)valuation of properties once listed occurs only extremely rarely. Once on a register, sites normally remain listed unless they have been demolished or substantially modified so as to lose their significance [23,24].

In cases where no prior listing occurred or where the information is deemed insufficient, the permitting/listing body may request further information. In the case of Indigenous Australian sites and associated archaeology, that request is usually firmly embedded in the development (application) process, which requires many developers to carry out archaeological surveys [92]. When it comes to the built environment or cultural landscapes, there is usually no such procedural requirement unless development occurs where a major Environmental Impact Assessment (EIA) is required—which is, proportionately, less common. Any request for further information that is not enshrined in procedural policy presupposes that the expert staff of the permitting authority suspect the presence of significance in the affected property. That is less likely to occur if a community-based heritage study has been carried out in the recent past, which can be presupposed to have holistically canvassed the heritage(s) present in the community.

Community recognition (and valuation) of cultural heritage items is flawed, however, in the case of those properties that have very low aesthetic appeal and where the historic significance may lie in times beyond the recollection of the present generation. The concept of the shifting baseline syndrome, common in ecological studies [93,94], is very much applicable here, as shown in a different essay [24].

In such cases, community heritage studies, which are the current paradigm for local area heritage studies, are particularly vulnerable to underassessment. Moreover, the perceptions of the community members participating in the study, and the perception of the elected local government councillors as to what constitutes 'heritage' also limits what will eventually be listed, regardless of whether a heritage study recommended listing or not [95]. While councillors are guided by criteria and professional advice, and while, on the whole, they do not make whimsical decisions, their own perceptions (and valuations) of what constitutes heritage do directly influence (i) the terms of the reference for a heritage study (by limiting the study spatially or temporally); (ii) the nature of heritage places listed (by weighing a proposed listing against perceived impost on economic viability for example); and (iii) all decisions on development approvals affecting heritage sites.

At present, a site is deemed culturally *in*significant unless it is listed on one of the heritage lists (local, state, national) or at least included on one of the heritage lists compiled by professional bodies, such as the Royal Australian Institute of Architects or Engineering Heritage Australia, or by advocacy groups such as the National Trust. The only exception occurs in some grant stipulations or when an environmental impact assessment for an area is required. The application of the precautionary principle in cultural heritage management would require a radical reversal of the decision-making process: unless proven otherwise, every item is deemed culturally significant. Even if cost-effective procedures could be developed, this reversal of the burden of proof would cause a financial burden on the owner or developer that in the present political climate would be deemed as stifling to/of economic growth. Any pursuance of a reversal of the burden of proof would require bipartisan cross-party political support, which will be extremely unlikely.

3.3. Future Studies and Strategic Foresight

While both stewardship and the precautionary principle take futurist stances, they are not expressions of true future studies. The field of future studies researches the medium-term to long-term future of societies and their setting, the physical world, encompassing the mechanisms as well as the driving forces of change. As the future is neither predictable nor predetermined, but will be influenced by the choices we make in the present, a subset of future studies is concerned with foresight. The research direction of 'Strategic foresight,' defined as 'the ability to create and maintain high-quality forward views and to use the insights arising in organizationally useful ways' [96], is particularly apposite when considering the management of cultural heritage.

Given that by its nature, cultural heritage management (in the US: 'historic preservation') is an intensely retrospective discipline, it is not very surprising that future studies have been rare in the discipline. Even front-end technologies such as space exploration received mainly retrospective assessments once it was (almost) too late [47,97,98]. Existing, conservative future studies are limited to discussion of the management of space technology such as orbiting satellites [53,99,100], as well as the future heritage management of sites currently in existence on other celestial bodies [47,101]. True future studies would argue that these issues are still confined to the human sphere of cultural heritage. This anthropocentric paradigm has recently been challenged by the author who started the discussion on the future of robotic heritage, looking at the question of how we might manage cultural heritage sites created by future artificial intelligence-imbued robots [102]. For the purposes of this paper, however, we will remain confined to the conceptualization of aspects of human heritage, and, moreover, of cultural heritage sites already in existence.

Strategic foresight, when applied to cultural heritage management, posits that in order to actively influence the shape of present cultural heritage in the future, and future cultural heritage in the present, not only do we need to make decisions about which identified cultural heritage items we need to conserve and how to best go about doing so, but we also need to consider current and as yet not identified items of the cultural environment.

The application of strategic foresight in heritage management tries to identify future heritage values of an asset. Based on the assessment and valuation of a short time span, educated projections are made as to whether the observed (short time span) pattern is probable to continue in the near and medium term future. If such a scenario (or variations thereof) can be deemed probable, then it can be assumed that the key heritage assets that best exemplify such a future will become culturally significant assets in the future. These assets can then be heritage-listed (precautionary listing) to safeguard these values.

In the museum world, such a concept is not unknown. The world over, museums collect examples, which are deemed to be significant departures, or statements, of present society, and which are anticipated to possess future value. This is particularly well developed in the arena of museums of contemporary art, but also in museums of technology and design. A good example is the collections policy of the Museum of Contemporary Art, Los Angeles, which stipulates that

> "*The Museum of Contemporary Art proceeds from the underlying premise that to remain contemporary is to assume a confident and aggressive posture in its approach to art at the moment it is being created. The museum will pursue a dynamic balance in its programs and collection, ensuring consistent inclusion of art that is presently emerging along with work of historic significance*". [103]

At the same time, the museum reserves the right to de-accession items that no longer fit into the collection (although the criteria are not spelled out). However, concepts as de-accessioning are only very rarely applied to the built environment. The corollary to the use of precautionary listing of heritage assets and strategic foresight in heritage management is a continual cyclical re-evaluation of these listing properties (say, on a five-year basis) and the preparedness of the listing authority to de-list the asset if the projected scenario (and significance) does not eventuate.

In comparing the three futurist stances in their applicability to cultural heritage management, the various limitations become obvious if depicted on the hindsight/foresight continuum (Figure 4). While stewardship has a futurist stance, it is in essence an entirely retrospective concept by projecting the retrospective values to the near future. The precautionary principle too looks back onto the values held and projects them into the short and medium future. The concept of strategic foresight, on the other hand, builds on past values and processes to inform the present and then projects the present into the future.

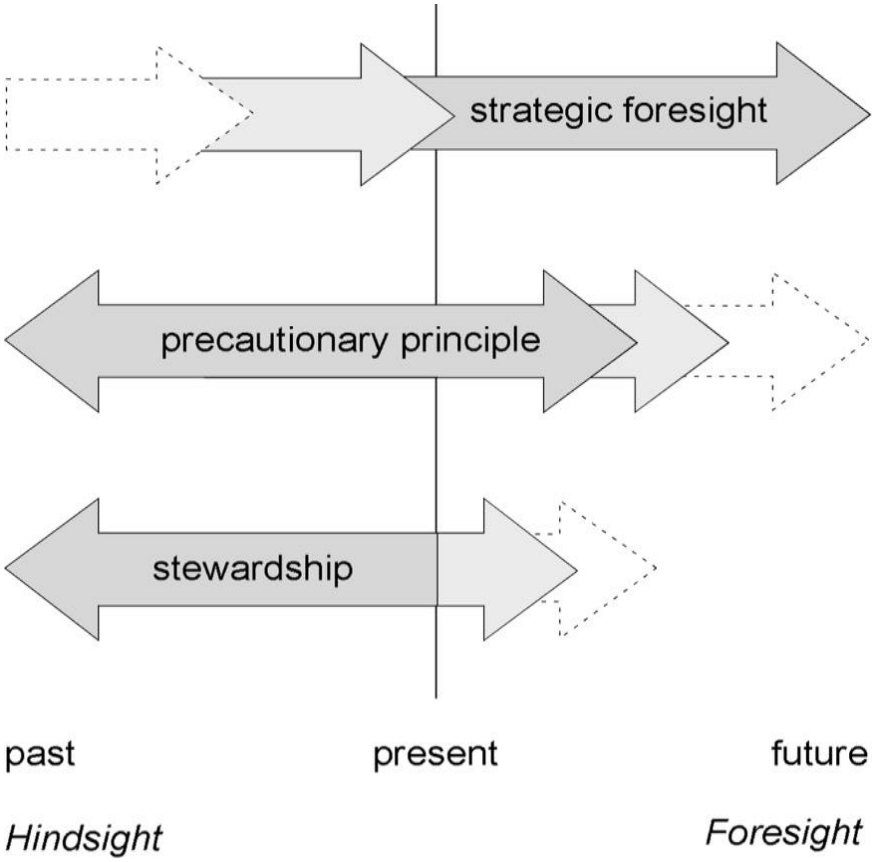

Figure 4. Stewardship, the precautionary principle, and strategic foresight as embedded in the hindsight/foresight continuum.

4. Converting Known Unknowns into Knowable Realities

As the foregoing discussion has shown, the present cultural heritage management regime is ill suited to deal with contemporary and emergent cultural heritage. Neither heritage stewardship nor the precautionary principle are tools which are capable of ensuring that emergent heritage has a secure future. A modified version of strategic foresight, on the other hand, provides a conceptual framework for this to happen.

Standard forecasting based on strategic foresight considers the trajectories of present day social, economic and environmental trends, and merges these with emergent and on-the-horizon technologies and opportunities. Based on these, several scenarios are developed as to what a future would look like in the medium (5–10 years) and long term (more than 10 years) (Figure 5) [104–106]. As time moves on, the assumptions that underpinned some scenarios did not eventuate, causing these scenarios to become obsolete, while other scenarios may remain valid forecasts.

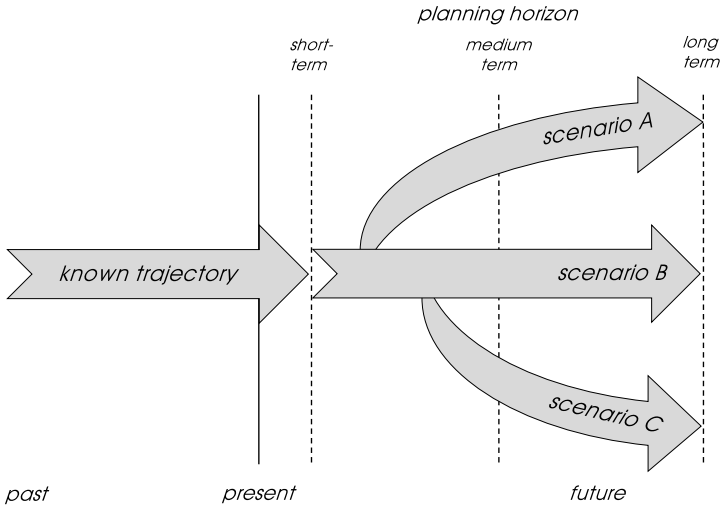

Figure 5. Relationship between the known past and present and the futures derived from strategic foresight.

Strategic foresight can, and should, consider that black swan events (unpredictable events that are beyond what is normally expected) may occur, but cannot necessarily predict the exact nature, let alone the timing of these events. The emergence of COVID-19, for example, was not a 'Black Swan' event *sensu strictu*, as the emergence of a SARS-like coronavirus was predicted by public health professionals [107]. Yet, despite the probability that zoonotic viruses would jump the species barrier to humans and might cause an epidemic, the rapidity of the spread of COVID-19 into a global pandemic was beyond expectations.

Governments, particularly state and local, engage in mid- to long-term planning, formulating long-term strategic development plans commonly with a 20- to 30-year time frame®. These plans spell out the visions of a future community, commonly encompassing social, economic and environmental dimensions, while at the same time articulating the critical (and hence significant) foundations to achieve that projected future.

A viable heritage futures paradigm, as initially articulated in a 2012 conference presentation [108], draws on these plans and places the heritage professional of today into that envisioned future—with the assumption that the strategic foresight scenario has proven to be correct. In this paradigm, we are now writing the year of the defined planning horizon (say, 2045) and the community we are 'living' in, that is, the social and physical environment we are experiencing in 2045 is as exactly as it was envisioned 'back in 2022'. This hypothetical heritage professional can now employ the standard tools of hindsight to look back to and evaluate the heritage of the early 2000s. Standard methodology can be used to assess which heritage places would have sufficient significance for the realities of 2045, and then allow them to be listed and protected (Figure 6).

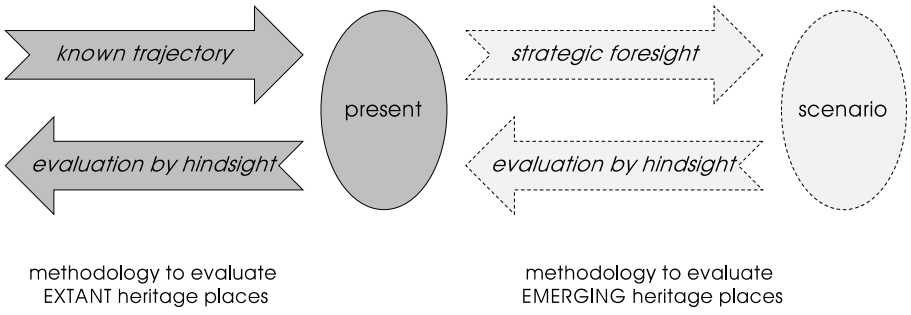

Figure 6. Relationship between the existing methodology to evaluate extant heritage places and heritage futures methodology to evaluate emergent heritage places.

This exercise, when carried out for each of the proposed scenarios, will result in a list of places that are likely to become significant in the long-term future. These places should be placed on an indicative list and treated as heritage-listed until determined otherwise. As time moves on, some scenarios will become obsolete. Heritage-listed places solely associated with these scenarios can then be removed from the protection regime unless they should remain for other reasons.

In this paradigm, it is important to note that the development of the strategic foresight-derived scenarios is independent from the subsequent heritage assessment. Moreover, there is also no overlap among the individuals involved in the development of the scenarios and the subsequent heritage assessment, ensuring methodological purity.

It is acknowledged, however, that the proposed paradigm and conceptual approach has one shortcoming that cannot be overcome: all heritage assessments are still based on current (2022) heritage values and value concepts, and current-day heritage professionals will approach evaluation based on their own generational baselines [24].

The present is an exciting time, with unparalleled technological advances in the realms of robotics, artificial intelligence and composite building materials, while at the same time espousing environmentally sensitive and responsible designs, as evidenced by the structures at CSU Thurgoona. All indications are that the future will be even more exciting and challenging. Yet, we are ill prepared to deal with the heritage(s) that are and that will emerge from these developments. If we wait until such time that we can assess their relevance through retrospective evaluation, it will be too late.

In the face of the inoperability of the existing cultural heritage structures to safeguard emergent cultural heritage, a paradigm shift is required. This entails a two-pronged approach to the management of our present and future past: *Hindsight* to ensure that the culturally significant elements of our past are being identified and managed in an ethical fashion for the social benefit of the present generation; and *Strategic Foresight* to ensure that the culturally significant elements of our present and emergent future are being identified and managed in an ethical fashion so that the next generation can make a retrospective assessment of their value for their own generation. Unless we are prepared to undergo such a paradigm shift, we will stand accused by future cultural heritage managers that we wantonly squandered the significant items of our present.

5. The Role of the Unknown Unknowns

Finally, we need to consider what Rumsfeld had famously called the 'unknown unknowns' [1], the unknown space in the Johari Window [86]. While we can readily address the matter of 'known knowns' in heritage assessments, and this paper has presented a paradigm for the assessment of 'known unknowns', we do not have a means to characterize the 'unknown unknowns' beyond the fact that we need to be cognizant that they will exist.

Since the 'unknown unknowns' are unknowable, it is apposite to develop a mechanism that addresses the 'unknown unknowns' the moment they appear on the horizon, as 'known unknowns' are turned into full-blown 'known knowns.' A good example for this would be the heritage of COVID-19 and the lessons that can be drawn from this.

As noted earlier, the emergence of SARS-CoV-2 was not a 'Black Swan' event, since the emergence of a SARS-like coronavirus had been predicted by public health professionals [107]. What was unanticipated, however, was that the globalization of commerce would turn an essentially local epidemic into a global COVID-19 pandemic which would then rapidly develop into the cross-sectoral disruptor that it proved to be. As soon as the first nationwide border closures and lockdowns were implemented, and as soon as societies adjusted their behaviors and social expectations (including acquiescing to the curtailment of personal freedoms of movement and congregation), it became clear that this pandemic was social history and heritage in the making. This realization provided an opportunity to record history in real time, to document sites and to collect associated material culture as it was being produced and used [62,109]. Some of the expressions of COVID-19 management, such as digital check-in systems or self-adhesive distance markers placed on the floors of

shops were eminently ephemeral and, unless documented in time, would have been lost even while the pandemic was still raging.

As posited elsewhere, the heritage documentation, collection and protection should occur the moment events break that have all the hallmarks of socially and culturally significant inflection points, and that are therefore very likely to form culturally significant heritage when assessed in hindsight after a set length of time [109]. If heritage managers prefer to espouse a conservative approach, then the collection and protection can be implemented on an interim basis, with protection and curation in place until such time that the significance is determined. Where significance is discounted, the objects can be de-accessioned and the places taken off the interim heritage list.

Drawing on the experiences of COVID-19, then, it would be desirable for heritage management organizations, be they state heritage protection agencies and local government agencies or professional bodies, to develop protocols that can be activated when 'unknown unknowns' that appear on the horizon show the hallmarks of socially and culturally significant inflection points. While 'unknown unknowns' are unknowable, they are not unmanageable from a heritage point of view.

6. Conclusions

The conceptualization of humankind's interactions with their environment and one another as *cultural heritage* and its management for the benefit of present, and possibly future generations, is based on an assumption that these interactions have cultural significance. Since a considered evaluation of that significance requires the passage of time, cultural heritage management is by nature a retrospective discipline. Not surprisingly then, cultural heritage managers often struggle with the evaluation and management of very modern and contemporary heritage items.

This paper examined to what extent the concept of heritage stewardship, as well as two other futurist concepts, the precautionary principle and strategic foresight, were applicable to heritage management. None were found to be suitable to assess and evaluate modern and contemporary heritage items.

As a workable solution, an assessment model was proposed that draws on a strategic foresight-derived scenario-based future 'reality' at a 15 to 30-year horizon. Assuming that reality to be valid and positioning the present-day valuer into that reality allows the valuer to apply standard heritage hindsight assessment methodology to contemporary heritage items. Because both the development of the scenarios and the heritage evaluation are methodologically independent, the model produces valid, reproducible and verifiable determinations.

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