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Proposed aspects for evaluation of the value of spaces in historic buildings

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Abstract

There is an unrealised potential for new uses of cultural heritage sites. The purpose of this paper is to identify evaluation aspects for assessing the potential of new uses for cultural heritage places and test the proposed aspects in a case study. The proposed framework serves as a tool for understanding the value of spaces for historic buildings. The paper provides a short introduction to the different aspects typically included in the different types of evaluation. We pursue a broad approach to attain a holistic perspective on evaluating cultural heritage places, including evaluation approaches from facilities and project management as well as architectural and cultural heritage management. Based on the review, we propose a framework that consists of key evaluation aspects. We distinguish among nine primary aspects to assess cultural heritage places: history, architecture, structure, environment, legislation, plans, time, users and economy. The proposed set of aspects is applied to evaluate a pilot case and its potential for new use. Two types of results are presented: the proposed aspects for evaluation of a site and reflections based on their application. The case is “Værnes Hovedgård”, a 19th-century manor house located on an air base. The case study illustrates a situation in which a cultural heritage site loses its original function because of a combination of an unfortunate location and physical characteristics. The historic aspect is clearly relevant to this type of site. The building is sound and healthy, and it receives continuous maintenance. This building has direct funding for maintenance but it generates no income and is rarely in use. We discuss different approaches for alternative use, based on the proposed evaluation aspects. These aspects could be applied to evaluating other cultural heritage sites with special focus on the potential for use.

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1. Background

In order to assess a cultural heritage site in a structured manner, this paper discusses alternative evaluation aspects and proposes a set of evaluation aspects; it then applies these aspects to a cultural heritage site. We identify aspects that are relevant for a holistic approach that involves searching for potential new uses while maintaining the cultural heritage of the site. A major challenge to facility managers involved in cultural heritage management is how to evaluate the impact that specific development alternatives may have on the cultural heritage assets. Cultural heritage sites are simultaneously cultural monuments and resources for use. For the great majority of heritage buildings, the intention is to continue using them, find practical solutions for making necessary upgrades while retaining their historical value. Making decisions about approaches to upgrade or redesign for new use should be based on a comprehensive assessment of the consequences of and the possibilities for different approaches to upgrading and management. Feilden and Jokilehto (1998) discuss the concept of cultural heritage in a broad sense, including all signs of human activities and achievements over time. This broad definition of cultural heritage is also reflected in the Norwegian Cultural Heritage Act (1978, last amended in 2000).

The Act protects approximately 5,700 buildings in Norway. As Carter and Grimwade (2007) note, for the majority of cultural heritage places, disuse is not a long-term solution. During the second half of the 1900s, numerous international charters and conventions on cultural heritage protection were adopted. The most-approved charters, such as the Venice Charter (Second International Congress of Architects and Technicians of Historic Monuments, 1964), have been important in planning decisions and have been referred to as having a “quasi-legal status” (Truscott and Young, 2000). Since 1912, Norway has had a governmental cultural heritage management authority (Riksantikvaren, 2012). Until the Second World War, the intention was to conserve the built heritage that attested to the identity and historical significance of the nation (Bye, 2010). Since then, the philosophy about what is important to protect has seen a widening of scope (Christensen, 2012). It has been stated in all recent governmental policy documents on heritage management that representative buildings and built environments from all aspects of society should be protected. It is also stated that ideally, the majority of such buildings should be in use (Stortinget, 2013).

Whereas many assessment approaches tailored for use in the cultural heritage field are primarily decision-making tools to find appropriate levels of protection, our aim is to guide future management decisions (Mason, 1998), especially decisions related to finding new uses.

2. Methodology

The methodology applied in this paper is a combination of a literature review, the establishment of a conceptual set of aspects, the application of those aspects to a building and finally discussing the proposed aspects. We thus present two types of results: the aspects of a site and reflections based on their application. The selection of aspects is based on a literature review of different evaluation approaches. It is our intention to develop a holistic set of aspects for evaluating cultural environments and heritage buildings, based on general evaluation experience and best practice. We therefore research a set of academic disciplines relevant to managing cultural heritage sites— facilities management, cultural heritage management, architecture evaluation, and project management.

To test this approach, we have chosen a complex case, Værnes Hovedgård, a 19th-century manor house with legal protection since 1934, owned by the Armed Forces of Norway. The qualitative case study research approach described by Yin (2008) is employed. As Mason (2005) notes, case studies are important for researching cultural heritage because of the conceptual difficulties in quantifying preservation value. Information relating to the case has primarily been obtained from literature and archive studies, interviews and field studies. This was supplemented by information from national databases for newspaper articles, and various historical archives for maps, drawings and photos. The Armed Forces provided up-to-date drawings, status reports and future plans related to the building. We have repeatedly visited the site, used both regular and infrared cameras for photo documentation, controlled and supplemented drawings and measurements and conducted informal interviews with key on-site facilities-management personnel and craftsmen. We also have contacted the architect responsible for the upgrading project.

The search for newspaper articles has been made in the database Atekst. All of the important information related to the investigation has been collected in a case-study protocol. The protocol includes collected documentation, transcribed notes from interviews and codification of results to fit the proposed aspects. The codification of results has been reviewed by all three authors to guard against personal bias in the case descriptions. We have strived to secure reliability by describing the theoretical basis for the proposed aspects and also by describing the research process and involving all three authors in the analysis. The case illustrates a situation in which a site has lost its original function owing to the combination of an unfortunate location and physical characteristics. Such a situation is not unique and the number of protected buildings is rising.

3. Approaches to evaluation

Below, we briefly review the evaluation approaches that have been applied in the fields of architecture evaluation, cultural heritage and facilities and project management. According to Steinke et al. (2010), there is no industry-accepted definition of building evaluation. However, in a facilities management context, post-occupancy evaluation is a matter of special interest (Hansen, Olsson, Blakstad, 2012). According to Preiser et al. (1988), a post-occupancy evaluation (POE) is “the process of evaluating buildings in a systematic and rigorous manner after they have been built and occupied for some time”. Steinke et al. (2010) classify POE evaluation tools into four categories: service, functional, physical and financial performance. Evaluation can be defined as a “systematic and objective assessment of an ongoing or completed project, program or policy, its design, implementation and results (OECD, 2000). Another definition is “the process of determining the merit, worth or value of something” (Scriven, 1991).

According to Feilden (1982), historic buildings may have architectural, aesthetic, historic, documentary, archaeological, economic, social, political, spiritual and/or symbolic value. He also presents a set of values that are important in the conservation of historic buildings: emotional, cultural and user-related (Feilden, 1982). With respect to managing world cultural heritages, Feilden and Jokilehto (1998) discuss cultural and socio-economic values. Cultural values include identity, artistic or technical and rarity values. Socio-economic values include economic, functional, educational, social and political values. Silva and Roders (2012) propose using the following values in heritage (impact) assessments: social, economic, political, historic, aesthetic, scientific, age and ecological. Roald (2000) recommends the use of the following aspects in the management and analysis of historic cities: social, economic, institutional, ecological and visual. Unnerback (2012) presents a systematic approach for evaluating buildings and sites being considered for legal protection. The aspects include documentation value and experience value, but they also include enhancing aspects. Enhancing aspects are not heritage values in themselves, but they indicate the relative importance of different heritage values. Enhancing aspects include uniqueness, authenticity, representativeness and pedagogical value. In Norway, Riksantikvaren (2009) has launched the DIVE evaluation tool for cultural-historic site analysis.

Nasar (2000) summarises a large number of preference studies about architectural quality. Those preferences are summarised in six characteristics. Each can have either positive or negative aspects. Cold (1990 and 2003) applies a similar list of preferences in evaluating schools and wood-based architecture. The six dimensions are as follows: natural construction components, complexity, historical significance, order and completeness, maintenance and cleanness and openness/light. Cold points to the tacit aspect of evaluation of architectural quality.

In project management, evaluation is relatively common (Olsson et al., 2010). As described by Samset (2003), the so-called logical framework also includes a number of different dimensions to include in an evaluation, such as policy support measures and environmental, technological, socio-economic, institutional and financial aspects.

Finally, we note that a number of authors have argued in favour of a multi-aspect evaluation approach. Evaluators who aim to include a user perspective, and evaluators that are less focused on use and occupation than we are, often prefer holistic evaluations based on a diverse set of approaches and indicators, typically combinations of quantitative and qualitative evaluations (OECD, 2000). Graham et al. (2009) note that closed disciplinary fields are a weakness of today's research on cultural heritage.

4. Proposed set of aspects

Table 1 is a summary of the key aspects of evaluation from the literature review set forth above. There was a tendency that several authors focused on different aspects related to their own fields. As a consequence, we found a need to propose our set of key aspects, with the aim of covering a wider range of aspects than we found in much of the literature. We do not question whether a place is a cultural heritage, but we focus on evaluating the aspects relevant to its use, given the existing protection status.

Table 1. Overview of evaluation aspects, and our proposed set of aspects.

| Authors | | | | | | | |
|---------------------------|------------------------------|------------------------------|------------------------------|--------------------------------|------------------------------------|------------------------------------|----------------|
| Steinke et al. (2010) | Feilden (1982) | Silva and Roders (2012) | Roald (2000) | Unnerbäck (2012) | Nasar (2000), Cold (1990 and 2003) | Samset (2003) | Proposed model |
| Post occupancy evaluation | Cultural heritage management | Cultural heritage management | Cultural heritage management | Cultural heritage management | Architectural evaluation | Project and foreign aid evaluation | |
| | Documentary | Scientific | | Documentation | | | |
| | Historic | Historic | | Historical | Historical significance | | History |
| | Aesthetic | Aesthetical | Visual | Aesthetical (experience value) | | | |
| | | | | | Order | | Architecture |
| | | | | | Openness, light | | |
| Physical performance | | | | | Complexity | Technology | Structure |
| | | | | | Maintenance and cleanness | | |
| | | Ecological | Ecological | | Natural construction components | Environment | Environment |
| | | | Institutional | | | Institutional | Legislation |
| Service performance | Political | Political | | | | Policy support measures | Plans |
| | Archeological | Age | | Uniqueness (enhancing) | | | Time |
| Functional performance | Social | Social | Social | | | | Users |
| | | | | | | Socio-economic | |
| Financial performance | Economic | | Economic | | | Financial | Economy |

We have identified a set of nine aspects to use in evaluating cultural heritage sites. Below, we briefly describe our interpretation of the proposed key aspects:

- History: In order to determine whether a site can reflect its history, it is necessary to know that history. History also includes documentation of the site, the materials used and any physical traces after human activity.

- **Architecture:** This aspect is the space experienced inside and outside, the character of space, *genius loci* (Graham et al., 2009; Norberg-Schulz, 1980). Because architects tend to rely on both tacit knowledge and explicit information, evaluating architectural aspects should include clarity with respect to their significance (Nordic Council of Ministers, 2003).
- **Structure:** This aspect is the state of the cultural heritage site, including its integrity and whether its fabric and construction are healthy, appropriate, strong and able to meet today's technical demands.
- **Environment:** Environmental aspects include the situation and position in the landscape and environmental consequences of the management of the site.
- **Legislation:** Legislation is part of the framework of a cultural heritage site, which includes national laws, local regulation plans and internationally binding agreements.
- **Plans:** This aspect comprises future plans for the heritage, including any public plans, whether from authorities, users or interest groups.
- **Time:** It is important to know whether time is a critical factor. Will the cultural heritage site deteriorate rapidly without intervention, or are the site and its values not under immediate threat?
- **Users:** There is a wide array of possible users, including both owners and others. Users also include staff who are responsible for management and maintenance and people who conduct activities at the site.
- **Economy:** This includes the entire financing of the site in present-day conditions, these include incomes from use, rent, funds and donations, along with repair, maintenance and management costs. Cultural heritages typically have both monetary and non-monetary value (Mason, 2005).

Some of the proposed aspects are based on relatively explicit knowledge, such as structure, legislation and plans. The evaluation of other aspects, and architecture in particular, is to a larger extent based on tacit knowledge. This has challenges, but there are established traditions for evaluating architectural qualities (see for example the work by Cold, 1990 and 2003).

5. Applying the proposed set of evaluation aspects to Værnes Hovedgård

In the following, we analyse the case site based on the proposed aspects.

5.1. History

Værnes belonged to the Norwegian kings until 1354, when it was transferred to the archbishops in Nidaros (the present day Trondheim). In approximately 1354, Værnes was split into two farms, western and eastern. Our case, Værnes Hovedgård was constructed in 1813. Until 1940, the farm had 21 burial mounds, the oldest dating back to the 800s AD, and it has burial finds from the Germanic Iron Age (Fortidsminneforeningens Årbok, 1874). The military acquired Værnes Vestre in 1887. An air force unit was established at the site in 1919. In 1942, the occupants expanded the airfield, flattening 21 burial mounds and traces of numerous others. After the war, the air base at Værnes was developed to be both a civil and military airport, leading to significant construction activity.

5.2. Architecture

Værnes Hovedgård, the present main building is part of a courtyard consisting of four buildings. *Værnes Hovedgård* measures 39 x 9 metres. It is a wood-clad timber construction that has a gabled roof with slate tile covering that was added in approximately 1900. (Nilsen, Reiersen, 2010). All its rooms are organised in one or two parallel rows along the length of the building, making up long, narrow bodies of sometimes considerable length. Værnes Hovedgård has two floors, an attic and cellars. The main floors have two parallel rows of rooms. Access to all rooms is through the adjacent rooms—there are no narrow hallways. Værnes Hovedgård has 25 and 24 rooms on the ground and first floors, respectively. There are a number of rooms of 20–25 square metres; some are smaller, but none are larger. These rooms are no larger than a normal-sized living room in local farmhouses (Dahle, Grytli,

Nilsen, 2005). The vertical communication is through one main staircase and a number of secondary ones. Ceiling heights are between 2.9 and 3 metres. The building has four large entrances. The building has empire-style details on the exterior and in the interiors. The interiors are quite stripped, and most walls are simply panelled. There is no kitchen. The building is flexible due to the generality of its internal plan.

5.3. *Structure*

The building has suffered damage caused by earlier insufficient foundations. The foundations are masonry barrel vaults and walls supporting a timber construction with wooden cladding and a wooden roof with slate covering. The insulation is timber, clay and hay. Prior to a recent renovation, the building had suffered damage, primarily related to instability of foundations and rot problems. It had also been exposed to military urban warfare exercises (Nilsen, 2012). This damage has now been repaired. Værnes Hovedgård underwent a thorough renovation in 2012, repairing (not replacing) roofs, foundations, cladding, windows and doors and clearing out newer, low-quality interior additions. The building has fire alarm systems and is slightly heated to avoid humidity. The building does not have bathrooms, kitchens or indoor plumbing, and it is not accessible for disabled. It is therefore difficult to find a new use without making alterations.

5.4. *Environment*

Værnes Hovedgård has significant challenges related to the environmental aspects at its location. Air traffic causes considerable noise, and sound-insulation measures would need to be implemented if the building were to be used regularly. (Nilsen, Reiersen, 2010). The building is constructed in such a way that despite its size, it could be dismantled and moved. This is not considered good conservation practice. Timber structures are demountable, but moving the building would disconnect it from its historic context.

5.5. *Legislation*

The building complex and the surrounding area are protected by law (Moe, Teigen, 2011). Værnes Hovedgård was officially listed in 1934 (Foreningen til Norske Fortidsminnesmerkes bevaring, 1936). It was also protected through a national protection plan for defence related buildings (Landsverneplanen). This listing requires owners to care for their sites, and it limits owners' ability to make changes. With respect to new use, Værnes Hovedgård fails to meet the current technical requirements (TEK10) of the Norwegian building legislation, including fire safety, accessibility, technical installations, sound-proofing and energy efficiency. The TEK10 regulations allow exceptions for some matters related to cultural heritage, such as energy-efficiency requirements, but not for all.

5.6. *Plans*

Værnes Hovedgård is part of the national protection plan (Forsvaret, 2012). The lack of a plan for the use of Værnes Hovedgård illustrates that there is a void and lack of pressure that is not constructive in terms of finding new use.

5.7. *Time*

There is no immediate threat to the building. However, there is one factor that could change. The armed forces have considered moving the fences so that Værnes Hovedgård could become a civilian property once again. If this proposal becomes reality, it would give Værnes Hovedgård new possibilities. Accordingly, time could be of the essence in a positive way.

5.8. Users

The owner is the armed forces, represented by the Norwegian Defence Estates Agency. The building does not currently perform any function. It is also disconnected from civilian use as it is surrounded by military fences and access limitations. The armed forces care for it because it is listed but they would like the building to be used in the future. It has been proposed that the building could be used for offices because there is a lack of office space at the air base, but that has not been considered a desirable alternative (Nilsen, Reiersen, 2010).

5.9. Economy

Currently, the armed forces have the money necessary to secure the building through the national budget (Cadamarteri, 2011). However, upgrading the building to full use is estimated to cost between NOK 40 and 60 million (Nordmeland, 2011), which has not been funded. Keeping the building empty also costs money and does not generate income.

6. Applying the aspects to Værnes Hovedgård

It is clear that the site has interesting architectural aspects. We note that it will be very challenging to find a compatible use without altering the building because of the lack of facilities such as water installations.

The historic aspect is clearly relevant to this type of site. There is a significant connection between the cultural heritage site and its history. The economic perspective is important for all buildings, but it is especially challenging for cultural heritage sites. This building has direct funding for maintenance, but the building generates no income.

It is of key importance that the building is legally protected. The armed forces care for the building because it is listed. Neglecting it would be a crime. From the user perspective, the building does not perform any function. The armed forces would like to use the building in the future, provided that it can be done legally. Today, the building is sound and healthy, and it receives continuous upkeep.

The historical aspect, and Værnes Hovedgård's strong connection to military activity, is part of its cultural heritage. Værnes Hovedgård is presently part of the armed forces' relatively small collection of unworkable properties. The building's long military history and inviting architecture should make it a good environment for possible uses such as offices. It should be seen as a valuable asset to have a listed, consistent, unique building.

There is no realistic possibility for civilian use while it is located behind the military airport fences. The future includes certain opportunities related to moving the fences so that Værnes Hovedgård could be accessible to the public.

We have discussed the idea of moving a cultural heritage site if its location is unfit. This was more common in earlier times, but today it is not a desired alternative because it entails the controlled destruction of a place. However, Værnes Hovedgård will be less unique outside of its current context. It will lack an important historical connection.

There are two aspects, both of which are economic, that are of key importance related to future use. One is the cost of moving the security fences. The other involves the costs related to bringing Værnes Hovedgård into compliance with current technical standards for use while maintaining its cultural heritage. We recommend conducting a cost analysis of the alternatives of moving the fences, converting the building into air base offices. A less desirable alternative is to continue with the existing solution of maintenance without use.

7. Reflections from the use of the set of aspects

One important insight was gained from this case study: when working in a holistic manner, an interdisciplinary team is necessary. Some fields are less accessible to non-professionals than others. We found architecture to be one of these because of architects' use of intuition and their tacit knowledge, combined with very specific skills and tools that do not easily translate to pure information or numbers that are applicable in other fields. Similar findings

are reported in previous studies. One purpose of this paper was to propose a set of evaluation aspects suitable for identifying the core attributes of a cultural heritage site in a structured manner. This case study indicates that our proposed set of aspects supports the holistic evaluation of sites such as Værnes Hovedgård. This type of analysis is important because the volume of protected sites is increasing. To achieve protection through the use of these sites, real estate and facilities managers must acknowledge that a number of aspects influence the possible use. We have proposed a set of aspects for this type of analysis. These have been tested on our pilot case, Værnes Hovedgård. The case has contributed to clarifying these aspects, including their relevance, interaction and interfaces.

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