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General Managers’ and Building Managers’ Different Evaluation of Building Value and Quality - As Built and Over Time

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ABSTRACT

This paper concerns the results of a research project on real estate strategies and building values based on a case study of the corporate buildings of DR (Danish Broadcasting Corporation). The paper presents some of the results from a questionnaire survey among select groups of managers in DR concerning their evaluation of 5 buildings.

The overall purpose of the survey was to evaluate the different buildings’ values and quality, both as built and over time. A second purpose was to develop and test a methodology to describe the values and quality of buildings at a general but still differentiated manner. The respondents were evenly distributed on general managers and building managers and a third purpose was to investigate the differences in the evaluations between these two groups.

The evaluations were based on the respondents’ answers to questions concerning a number of quality factors for each building. Furthermore, the respondents were asked to prioritize the quality factors. In the analysis the quality factors were grouped into cultural value and use value and into quality as built and over time.

The paper presents the general results of the survey with focus on the differences between the evaluations of general managers’ and building managers’ views on the values and quality of corporate buildings. The implications of such differences for the way building managers communicate with general managers and how architects approach and collaborate with large corporations is discussed.

KEYWORDS: Building Evaluation, Cultural Value, Use Value, Quality Of Buildings, Building Managers
1. INTRODUCTION

During the last 20 years a number of methodologies to evaluate the quality of buildings have been developed. These methodologies can be classified in two groups. One group is characterized by aiming at objective measurements of the quality of buildings, while the other group focus on measuring stakeholders’ subjective evaluation of the quality of buildings. In the following the first group is called objective-oriented methodologies and the second is called stakeholder-oriented methodologies.

Among the first objective-oriented methodologies was Building Appraisal, developed by the British architects and planners DEGW in the mid 1980’s. According to Duffy (1997) the background was a need to fill the gap between potential tenants and building owners. The technique was to test whether the spatial needs of particular types of office users could be met by typical floors of proposed or real office buildings.

A comprehensive objective-oriented system called Building Quality Assessment (BQA) was developed at the University of Victoria in Wellington, New Zealand and the system was introduces in Europe in 1995 after adaptation to the European market by the Building Research Establishment in the UK. The system aims at objective evaluation and comparisons of the quality of buildings from a user viewpoint. The evaluation includes 137 different factors divided in 9 categories. (Williams, 1999 and 2000).

Another very comprehensive objective-oriented system called Serviceability Tools and Methods (STM) was developed at the International Centre for Facilities in Canada (Davies, 1993). The principles are similar to BQA but STM is distinctive by including methods to evaluate both the demand and supply side and with particular focus on serviceability. However, the great complexity of the system has restricted the practical use of STM (Klarmmt, 1998). Recently, some of the principles of STM have been introduced in the development of a conceptual framework for Performance Based Building (PeBBu) in a EU funded project carried out by CIB in collaboration with the International Centre for Facilities in Canada (Szigeti and Davies, 2005).

In Norway the consulting engineering company Multiconsult has developed some less comprehensive objective-oriented systems. One of these is a system to evaluate the conditions of buildings divided into technical condition, functionality and indoor climate. This system is based on a Norwegian standard on building conditions (Multiconsult, 2000 and Jensen, 2006c). A more recent system is called Strategic Building Analysis, which focuses on evaluation of the functionality and the adaptability of buildings. The system has been used to evaluate a number of mainly public buildings in Norway and is also being used to evaluate hospital buildings in the Netherlands (Multiconsult, 2006).

The stakeholder-oriented systems include various types of user satisfaction evaluations. In DR (Danish Broadcasting Corporation) such an
evaluation was made as early as 1973 after receiving complaints from the users after occupation of a new high-rise office building. All employees present during a specific period in the new building were interviewed as well as all employees in an existing building for comparison (Jensen, 2006b). This kind of Post Occupancy Evaluation (POE) has more recently been elaborated theoretically and developed practically for instance by the American researcher Preiser (1989).

Another type of stakeholder-oriented method has been developed in Australia and is based on a visual inspection tour with a group of users through the building in question. The method is called “a generic evaluation process” and it is managed by professional facilitators. The method includes an introductory meeting, touring interview and review meeting (Kernohan et al, 1992 and Jensen, 2002).

In Denmark the State Building Research Institute has developed methods involving a number of different stakeholders’ evaluation of the quality of buildings – particular in relation to housing. One of the research projects included evaluations by building clients, architects and building users based on interviews with the aim to define a set of common quality parameters (Frøbert Jensen and Beim, 2003).

A more holistic approach to a stakeholder-oriented evaluation is being developed as part of the joint CIB and EuroFM project on Usability of Workplaces (CIB W111 – earlier TG51). A first report, including 5 case studies from different European countries, has been published (Alexander, 2005). One of the cases concerns evaluation of a University College in Norway and the study included a number of different methods: Workshop, walk-through, interviews and questionnaire survey involving both staff and students (Hansen et al, 2005).

The methodology presented in this paper is also a stakeholder-oriented approach but it has also been inspired by some of the objective-oriented systems. The focus is specifically on the decision-makers in relation to corporate buildings. The research has been part of a project on real estate strategies and building values based on a case study of the corporate buildings of DR and the paper presents some of the results from a questionnaire survey among select groups of managers in DR concerning their evaluation of 5 buildings.

The overall purpose of the survey was to evaluate the different buildings’ values and quality; both as built and over time. A second purpose was to develop and test a methodology to describe the values and quality of buildings at a general but still nuanced manner. The respondents were evenly distributed on general managers and building managers and a third purpose was to investigate the differences in the evaluations between these two groups. General managers and building managers are regarded as being of particular importance as they often are the most influential corporate decision makers in relation to buildings.

The paper presents the general results of the survey with focus on the differences between the evaluations of general managers’ and building managers’ views on the values and quality of corporate buildings.
The survey is documented fully in a project report in Danish (Jensen, 2006b). Other results from the project are presented in English in Jensen (2005a, 2005b, 2006a and 2006d)

2. METHODOLOGY

The evaluation concerned 5 different buildings/developments belonging to DR. The buildings are presented in table 1.1. The buildings are of very different age. The oldest – Radiohuset - was built around World War 2, while the most recent - DR Byen - was under construction in 2005, when the survey was undertaken. Most of the new building has been occupied during 2006 and the two oldest buildings – Radiohuset and TV-byen - have been sold and will be vacated by DR.

DR Byen replaces Radiohuset and TV-byen as DR’s headquarters in Copenhagen. The other two remaining buildings are placed outside Copenhagen. R/TV-huset is placed in Århus – the next largest city in Denmark, while Distriktshuse are three identical buildings for regional radio in other province cities.

<table>
<thead>
<tr>
<th>Building</th>
<th>Location</th>
<th>Period of DR's occupation</th>
<th>Space (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiohuset</td>
<td>Frederiksberg (close to Copenhagen city)</td>
<td>1941-2007</td>
<td>30,000 m²</td>
</tr>
<tr>
<td>TV-byen</td>
<td>Gladsaxe (10 km north of Copenhagen city)</td>
<td>1964-2006</td>
<td>100,000 m²</td>
</tr>
<tr>
<td>R/TV-huset</td>
<td>Århus (Jutland)</td>
<td>1973-</td>
<td>28,000 m²</td>
</tr>
<tr>
<td>Distriktshuse</td>
<td>Odense (Funen), Vejle and Ålborg (Jutland)</td>
<td>1983- Each 2.600 m²</td>
<td></td>
</tr>
<tr>
<td>DR Byen</td>
<td>Copenhagen (close to city)</td>
<td>2006-</td>
<td>130,000 m²</td>
</tr>
</tbody>
</table>

The evaluations were based on the respondents’ answers to 12 closed and 2 open questions on each building. The closed questions were evaluated on a scale from 1 to 5 and concerned aesthetics divided into timeless quality and quality related to the period the buildings were designed, support of corporate image, level of standard, functionality, comfort, extensibility, adaptability, durability, sustainability, worthiness of protection and overall evaluation. The definitions of these factors are shown in figure 1.1. The 2 open questions are also included in figure 1.1, but the answers to these questions are not presented in this paper.

Furthermore, the respondents were asked to prioritize the quality factors on a scale from 1 to 11 and indicate how well they know the different buildings on a scale from 1 to 5.

In the analysis the quality factors were grouped into cultural value and use value and into quality as built and over time as shown in table 1.2. The concept of value is discussed in Jensen (2005a).
1. **Aesthetics, timeless**  
The building’s architectural quality seen in relation to comparable buildings (Danish institutional and domicile buildings) independent of the time of erection.

2. **Aesthetics, period**  
The building’s architectural quality seen in relation to comparable buildings (Danish institutional and domicile buildings) erected during the same period of time.

3. **Support of corporate image**  
The building’s appearance as a symbol of the corporate brand.

4. **Standard**  
The building’s general level of quality as a physical product (poor – luxurious).

5. **Functionality**  
The building’s suitability in relation to the functions it is/was designed for.

6. **Comfort**  
The building’s indoor climate and comfortability as a place for work and stay.

7. **Extensibility**  
The ability of the original development plan to accommodate future needs for space.

8. **Adaptability**  
The building’s ability to be adapted to other usages.

9. **Durability**  
The building’s ability to resist physical deterioration over time.

10. **Sustainability**  
The building’s environmental quality in relation to minimizing resource usage and pollution.

11. **Worthiness of protection**  
The building’s importance as a part of the national heritage.

12. **Overall evaluation**  
Your personal evaluation of the building.

13. **Which aspects of the building do you regard as most positive**  
Write in your own words the specific aspects that you regard as most positive.

14. **Which aspects of the building do you regard as most negative**  
Write in your own words the specific aspects that you regard as most negative.

*Figure 1.1* Explanation of the questions on the quality of buildings in the survey
Table 1.2 The quality factors divided according to use value and cultural value and according to as built and over time

<table>
<thead>
<tr>
<th></th>
<th>Quality as built</th>
<th>Quality over time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use value</strong></td>
<td>Standard</td>
<td>Extensibility</td>
</tr>
<tr>
<td></td>
<td>Functionality</td>
<td>Adaptability</td>
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<tr>
<td></td>
<td>Comfort</td>
<td>Durability</td>
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<tr>
<td></td>
<td></td>
<td>Sustainability</td>
</tr>
<tr>
<td><strong>Cultural value</strong></td>
<td>Aesthetics, period</td>
<td>Aesthetics, timeless</td>
</tr>
<tr>
<td></td>
<td>Support of corporate image</td>
<td>Worthiness of protection</td>
</tr>
</tbody>
</table>

The questionnaire was sent to 10 potential respondents out of which 5 were present or former building managers and 5 were present or former general managers in DR. These covered all the managers regarded as relevant for the survey. Answers were received from 8 respondents with 4 in each group.

The number of actual respondents is very limited but so was the number of potential respondents. Considering this the number of respondents was satisfactory, especially as the number of respondents in each group was the same.

However, the number of respondents is insufficient to reach any sort of statistical evidence. Therefore, the survey can only be regarded as a pilot study and the results of the survey can only be seen as indicative.

3. RESULTS

3.1 Priority of quality factors

The results of the respondents’ answers to the priority between the quality factors are shown in figure 1.2 together with the standard deviation for each factor. Please note that 1 indicates the highest priority. Not surprisingly, functionality is given the highest priority with a very small standard deviation. This means that there is a high degree of agreement on this priority. Next follows adaptability and comfort which have almost the same priority, but comfort has a higher standard deviation. The lowest priority is given to aesthetics in the period and next lowest is worthiness of protection.

In figure 1.3 the priority is divided according to the four groups in table 1.2. The two groups concerning use value has a much higher priority on average than the two groups concerning cultural value. Similarly the groups concerning value as built have a higher priority than the groups for value over time for both use value and cultural value.

In figure 1.4 the priorities are divided according to the managers’ responsibility. Some clear differences in the priorities can be identified. The building managers give higher priority to comfort, sustainability, extensibility and durability than the general managers. On the other side general managers gives higher priority to worthiness of protection, adaptability and aesthetics during the period.
Figure 1.2 Priority of quality factors

Figure 1.3 Priority of quality factors in groups
When grouped together according to table 1.2, as shown in figure 1.5, it becomes clear, that building managers give higher priority to use value both as built and over time than general managers, while the general managers give higher priority to cultural value both as built and particularly over time than building managers. However, both groups give higher priority to use value than to cultural value – as built as well as over time.
3.2 Evaluation of buildings

The average evaluation of each of the five buildings is shown in figure 1.6 together with the standard deviation. Please note that the highest possible evaluation here is 5. Not all buildings were evaluated by each respondent.

The oldest building – Radiohuset – was rated highest with 3.9, while the next oldest – TV-byen - was rated lowest with 3.4. Further analysis reveals that the main reasons for these differences are due to major variations in the evaluation of the cultural value. In fact, the oldest building has the highest rating of cultural value and lowest rating of use value of all 5 buildings, while the next oldest building is the only one with a higher rating of use value than cultural value. The new headquarters – DR Byen – was rated on the average of 3.7, but the evaluation of DR Byen is rather uncertain as the building was under construction during the survey.

The standard deviation was highest for R/TV huset and for this building only there was a clear relation between the different respondents’ evaluation and how well they know the building. Those who know the building well evaluated it better than those who know the building less. The building’s architecture is dominated by in-situ cast concrete facades.

The results shown in the diagrams are not weighted in relation to the priority of the quality factors. With weighting the differences in the rating between the buildings decreases.
The evaluations of each building differentiated according to responsibility are shown in figure 1.7. There is a very clear difference between the evaluations with building managers rating all building considerably higher than the general managers. In average building managers rate the 5 buildings with 4,1, while the general managers rate the buildings 0,7 lower with 3,4. As the difference between the highest and lowest rating of the different buildings in figure 1.6 was only 0,5 it becomes clear that the differentiation in the rating is related more to responsibility than to differences between the buildings.

![Figure 1.7 Evaluation of each building according to responsibility](image)

3. SUMMARY

The results presented above can be summarized as follows.

Of the 11 quality factors functionality is given highest priority by both general managers and building managers. General managers give much higher priority to adaptability, aesthetics in the period, and worthiness of protection than building managers Contrarily, building managers give much higher priority to comfort, sustainability, extensibility, and durability than general managers.

In general, quality factors related to use value are given higher priority than quality factors related to cultural value. Similarly, quality factors related to value as built are given higher priority than quality factors related to value over time.

Building managers give higher priority to use value than general managers, while general managers give higher priority to cultural value.
than building managers. However, both groups give higher priority to use value than to cultural value – as built as well as over time.

The results of the evaluations of the buildings in question show that the differences in the responsibility of managers cause larger differences in the ratings than the differences between the ratings of the different buildings.

The building managers rate each of the buildings much higher than the general managers. This can be interpreted as the building managers professional affinity to buildings means that they find buildings of greater importance than general managers.

4. DISCUSSION

It is important that building and facilities managers are aware of these differences in the priorities and attitudes between themselves and their corporate general managers. They should in their communication with top managers about investments and other decisions related to building not put too much focus on the use value aspects except for functionality and adaptability and instead stress the cultural impact like the importance of aesthetic qualities in relation to the corporate image.

For architects and others who wants to collaborate with corporations it is also important to be aware of the differences between the two important groups of decision makers. In their communication with general managers they should mainly focus on functionality, adaptability and the cultural aspects to sell the project. In their often more day to day collaboration with building and facilities managers they should mostly focus on the use value aspects, including comfort, sustainability, extensibility and durability besides the fundamental functionality factor.

The results in this paper are based on a small survey among select groups of managers in one corporation. Therefore, it must be regarded as a pilot study. Even though the results only can be regarded as indicative, the differences between the evaluation of building managers and general managers are very clear and the implications are seen as important.

There is a strong international trend towards increased customer focus in the construction industry as well as other industries. Similarly, the need to take life cycle perspectives into consideration in building design has become increasingly recognised.

This paper presents an example of a methodology and some results, which can be used to identify the preferences in relation to buildings value and quality, both as built and over time, among key decision makers in clients’ organisations. It is important for architectural managers around the world to acquire this sort of information about their customers to be able to deliver the right design in the right way.
5. REFERENCES

Multiconsult, 2000, Tilstandsanalyse som grunnlag for verdifastsettelse. (Oslo; Multiconsult A/S).
Multiconsult, 2006, Strategic Building Analysis. (Oslo; Multiconsult A/S).
Williams, B. Benchmarking Quality and Risk. In Facilities Management UK.