

## **ОБЩЕСТВЕНИ КОМУНИКАЦИИ И ИНФОРМАЦИОННИ НАУКИ** **PUBLIC COMMUNICATIONS AND INFORMATION SCIENCES**

### **INPUT DEVELOPMENT FOR PROCESS CREATION FOR SUSTAINABLE INDUSTRIAL BUILDINGS**

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**Abstract:** *An analysis of the necessary input for the development of a sustainability strategy for global industrial construction projects of international automotive supplier from Germany will be carried out. In a first step, an analysis of internal and external stakeholders of the automotive supplier groups and their assessment of their relevance for the construction project will be carried out, considering the Group's sustainability strategy. In a second step, boundary conditions to be observed are analyzed, which apply both in Germany and abroad, and boundary conditions that must be taken into account especially for construction projects abroad. In a third step, the basic sustainability strategy for each construction project must be decided, in which the findings from the previous steps are incorporated. The aim of this process recommendation is to recommend action for companies in the automotive supplier industry to consider all relevant stakeholders and specific boundary conditions in the development of sustainable industrial buildings and to eliminate problems at an early stage of the project or to reduce them to a minimum.*

**Keywords:** *stakeholder, sustainability, industrial buildings, input*

#### **INTRODUCTION**

Global automotive suppliers place high demands on themselves and their suppliers in order to make a comprehensive contribution to sustainability. An important area that has a major influence on environmental and socially relevant criteria is the construction of new production properties.

Numerous national and international assessment and certification systems exist worldwide to prove that buildings comply with certain sustainability aspects and criteria. These assessment and certification systems are designed for specific building types and do not consider the specific requirements for automotive suppliers' production facilities or their Group's own cross-divisional sustainability strategies.

Based on a study in which the conformity of existing international sustainability certificates with the requirements for sustainability aspects of an automotive supplier was evaluated, the assessment and certification system DGNB (German Sustainable Building Council) is used as the basis for a concept of measures and evaluation for the implementation of new construction projects of sustainable production facilities of automotive suppliers.

The main arguments in favor of a Group's own sustainability action concept for its new production facility projects are that the Group's sustainability goals can be comprehensively taken into account, that the production facilities of an automotive supplier maintain comparable qualities worldwide, and that evaluation criteria can be adapted to local conditions.

#### **RESEARCH METHODOLOGY**

To create your own sustainability action concept, the relevant input must first be determined.

Of particular importance for determining the input is the knowledge of the relevant stakeholder groups for the Group's own construction projects. In a first step, all of the Group's stakeholders are examined

for their relevance for construction projects of automotive supplier production facilities. The stakeholder groups are internal and external groups or individuals who can affect or is affected by the achievement of the organization's objectives (Freeman 2010, p. 46). A stakeholder group analysis is therefore intended to investigate which stakeholder groups are important for the implementation of construction measures and in what form they should be involved in the further procedural steps.

Based on a relevance matrix from Müller-Stewens, which maps the influence on the own group and the influenceability of the stakeholder groups itself, and a materiality matrix from Lohrie, which determines the characteristics relevance of the stakeholder group and co-shaping competence, an own matrix is applied. The characteristics of power, conflict potential and interest are recorded. Power defines the means and possibilities of a stakeholder group to achieve or prevent successful implementation. The potential for conflict describes whether a stakeholder group is fundamentally positive or negative about the goals of the construction project. Interest represents the degree of participation of a stakeholder group in the construction project. The stakeholder groups (SG) can thus be located in 8 areas.

SG 1: high power, high potential for conflict, high interest.

SG 2: high power, increased potential for conflict, less interested.

SG 3: high power, low potential for conflict, high interest.

SG 4: high power, low potential for conflict, low interest.

SG 5: low power, increased potential for conflict, high interest.

SG 6: low power, increased potential for conflict, low interest.

SG 7: low power, low potential for conflict, high interest.

SG 8: neither power, conflict potentials or interest.

To form the rankings within the three attributes power, conflict potential and interest, an ordinal scale with a value spectrum (x) from 0 to 1 is used. 0 corresponds to weakly and 1 to a strong expression. The results are evaluated by determining the median. Intermediate values, as they would result from the calculation of the arithmetic mean, are not required. Due to the expected small size of the sample, the median is less susceptible to fluctuations. The modal value is not appropriate, since in the case of the topic of sustainable construction, which is subject to strong social discussions, the formation of two opposing but almost equally strong "opinion groups" would be conceivable, which would result in the complete embezzlement of the slightly weaker opinion group.

Thus, the following formula results for determining the median of the three attributes to be examined:

Formula 1: Calculation of the median

$$\bar{X}_{med,attribut} = X_{\left(\frac{n+1}{2}\right)} \quad (1)$$

Based on the stakeholder group analysis, the relevant special features of the construction measures are systematically recorded below. This includes the requirements from the analyzed stakeholder groups, and aspects that are independent of them, such as the site characteristics, the construction method or environmental influences. The phase is supplemented by the development of a sustainability strategy. It serves to provide a uniform understanding of the topic of "sustainable building" and to prioritize existing sustainability goals.

In the following, the three procedural steps mentioned above, which generate the necessary input for the further procedure, are described in detail and serve as a basis for the development of further procedural steps.

## **RESULTS**

### **STAKEHOLDER GROUPS**

Different stakeholder groups with different goals have an influence on the implementation of construction measures. Knowledge of relevant internal and external stakeholder groups is important for the success of construction projects. Internal stakeholder groups include a company's internal circle of management and employees, who can act as builders, owners, users, or operators. This group represents a stable constant, whereas external stakeholder groups can be very different and their influence can change,

which is why this group must be reviewed constantly and during the project. The external stakeholder groups include, among others, suppliers, competitors, media, trade unions, customers, etc.

In construction projects, the analysis, evaluation and participation of relevant stakeholder groups are used to try to prevent conflicts or minimise them as far as possible at an early stage. With the consistent involvement of all stakeholder groups is expected not only to consider corporate goals that have been defined in terms of sustainability and are pursued in the form of sustainability reporting, but also to develop new objectives and correct irrelevant ones.

A fictitious construction project for the construction of a new production facility was analyzed. In this context, the project sponsor was assessed as a C stakeholder group, as it has a high level of power and interest in the construction project. His potential for conflict, on the other hand, is to be assessed as low, as he formulated the need for this construction measure himself together with the user. The responsible building administration was classified in the same way. The Supervisory Board was assessed as an A stakeholder group because it has a high level of power and interest, but at the same time there may also be potential for conflict resulting from the financing of the construction project. The user was assessed as a G stakeholder group. He has a great interest, as he uses the building after completion, but his power is limited. The potential for conflict is generally low, since he has defined the basic need himself in the context of his needs assessment.

### **SYSTEMATIC RECORDING OF THE SPECIAL FEATURES**

The special features of construction measures in Germany and abroad have a significant influence on the process of holistic sustainability integration. The implementation of defined sustainability goals is much more difficult for construction projects abroad, as construction requirements cannot be defined uniformly, and each country has individual differences. A detailed consideration of characteristics is therefore necessary. All the special features of industrial construction measures in Germany also apply to construction measures abroad, but not all the special features of construction measures abroad apply to domestic construction measures. Therefore, it is crucial that a systematic and as complete as possible recording of all special features of the construction measures should be investigated.

### **COMMON FEATURES OF INDUSTRIAL CONSTRUCTION PROJECTS AT HOME AND ABROAD**

**Laws:** The consideration of all applicable laws is a basis for all projects in general and thus also for the process for holistic sustainability integration in particular. All applicable laws must be identified at the higher level and their influence on the objectives of the construction project must be described.

**Stakeholder groups:** Special features that result from special requirements of the relevant stakeholder groups, for example on the basis of the objectives of internal regulations, guidelines or standards. The consideration of special features can lead to certain qualities of a construction project being restricted or even completely excluded. Stakeholder groups can also make requirements that have to be included in the procedure as additional objectives.

**Type of use:** Different types of use usually also have different requirements for the individual aspects of sustainable construction.

The location of a construction project is of fundamental importance, as it exerts an influence on all achievable qualities. Especially abroad, the exact evaluation of the location is important, as there are always structural requirements that must be implemented.

**Technology and building materials:** In less developed regions, there may be a shortage of necessary technologies and building materials, which means that certain qualities are not achieved.

### **ADDITIONAL SPECIAL FEATURES FOR CONSTRUCTION PROJECTS ABROAD**

**Data:** To prove compliance with the required qualities, a sufficient data basis is necessary. Without this data, neither the planning can be meaningfully optimized regarding the sustainability of the construction project, nor can transparent final documentation and evaluation be carried out.

**Construction method:** In the case of construction measures, if the availability of necessary

technologies, building materials and data is limited, it must be determined whether the construction project is to be carried out with local funds or whether these are to be imported in part or in full from third countries. A change in the construction method results in a fundamental change in the achievable qualities.

**Skilled personnel:** To achieve the required qualities, the availability of the necessary specialist personnel is usually required. However, this is not always available for construction work abroad. The availability of specialist personnel must also be observed during the use phase to ensure that any maintenance measures are carried out with local personnel if possible.

**Environmental influences:** Depending on the location, there can be very different environmental conditions. These include climatic conditions, forces of nature and influences from the existing environment. These environmental characteristics should always be discussed, as they have an influence on the structural requirements and qualities of a building.

**Culture, society, and religion:** These peculiarities occur primarily in construction projects abroad.

The special features described represent a general selection, which must always be checked on a project-specific basis. The early recognition of the special features of a construction project is of great importance, as this has an influence on all further procedural steps. The systematic recording of the characteristics described must always be reviewed on a project-by-project basis and adjusted if necessary.

## **DEVELOPING A SUSTAINABILITY STRATEGY**

In addition to above mentioned analysis of the stakeholder groups and all special features, the definition of the strategic orientation of a construction project forms the basis for its sustainable development.

In the first step, all strategic sustainability goals of the construction project are identified by the relevant stakeholder groups. In the project development phase, the project promoters and users per se represent relevant stakeholder groups. It is possible to add other stakeholder groups and is to be carried out on a project-specific basis.

In the second step, concepts and measures are developed to implement the strategic sustainability goals. Similar measures can be combined into packages of measures. Only packages of measures that have a significant influence on the implementation of the Sustainable Development Goals are taken into account. The categories of measures form the object system, the utility analysis to be carried out in the third step. The target system for the utility analysis is formed by the protected goods of sustainable construction: ecology, economy and socio-cultural aspects. The protected assets are weighted by the stakeholders involved on a project-specific basis, considering their relevance. In a utility value analysis, the interactions between sustainability goals, suitable measures (packages) and protected goods of sustainable construction are then evaluated.

In the fourth step, the strategic sustainability goals are prioritized on the basis of the utility analysis. Only prioritizing the sustainability goals is not expedient.

In the fifth step, the sustainability strategy is composed of clearly defined main goals and secondary goals, which are positively influenced by the implementation of the main goal. With compensating and supplementary measures, an optimal sustainability profile is developed for the construction project. A comparison can be made at the quantitative level using the interactions already identified. Finally, a preferred combination is defined as the decisive sustainability strategy.

In the sixth step, concrete specifications and tools for the planning of the respective construction measure can be derived from the defined sustainability strategy.

## **CONCLUSION**

By analyzing the necessary input, a common understanding of the required sustainability in construction projects is created at an early stage in companies in the automotive supply industry, thus developing processes and recommendations for action that include structured, content-related, and realistically implementable goals in the user's requirements planning. The focus of the analysis is not on quantitative results, but on qualitative interpretations and use of the information to prioritize and harmonize the sustainable development goals. This contributes to the development of sustainable industrial buildings by eliminating or minimizing problems in early project phases. This allows the focus to be placed on

achieving the sustainability goals at the development stage.

#### REFERENCES

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### РАЗРАБОТВАНЕ НА ВХОДНИ ДАННИ ЗА СЪЗДАВАНЕ НА ПРОЦЕСИ ЗА УСТОЙЧИВИ ПРОМИШЛЕНИ СГРАДИ

**Резюме:** Ще бъде извършен анализ на необходимия принос за разработване на стратегия за устойчивост на глобални индустриални строителни проекти на международен автомобилен доставчик от Германия. В първата стъпка ще бъде извършен анализ на вътрешните и външните заинтересовани страни от групите доставчици на автомобили и тяхната оценка на значимостта им за строителния проект, като се вземе предвид стратегията за устойчивост на групата. На втора стъпка се анализират граничните условия, които трябва да се спазват и които се прилагат както в Германия, така и в чужбина, както и граничните условия, които трябва да се вземат предвид особено за строителни проекти в чужбина. На трета стъпка трябва да се определи основната стратегия за устойчивост за всеки строителен проект, в която да бъдат включени констатациите от предишните стъпки. Целта на тази насока на процеса е да се препоръчат действия за дружествата в сектора на доставчиците на автомобили, за да вземат предвид всички съответни заинтересовани страни и специфични гранични условия при разработването на устойчиви промишлени сгради и да премахнат проблемите на ранен етап от проекта или да ги сведат до минимум.

**Ключови думи:** заинтересована страна, устойчивост, промишлени сгради, вложени ресурси

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