Motivation
The objects of material infrastructure can be understood as production factors which are necessary for the production of goods and services. Construction, maintenance and operation are to be allocated to the object operation, which falls within the sphere of the state. On the other hand, the use of the infrastructure itself is to be allocated to the functional operation, which belongs to the sphere of the economic actors. As far as infrastructure is concerned, the state is making advance payments, current expenses are offset by future income.

The functional operation of the infrastructure, enabling economies, is an essential component of the entire national economy.

State of Research
According to the definition of Wöhe, profitability is defined as the quotient of income and expense. The difference between income and expense results in the (economic) profit.

As an expense, the values of all services provided by the property operation can be summed up over the total life cycle. This includes the cost of production, maintenance and operation.

However, it is not possible to quantify the income directly from a business point of view, but rather requires an economic perspective. The value of all services rendered within the functional operation of a period corresponds to the economic benefit. The aggregate economic benefit is defined as the sum of the consumer's pension (red in Fig. 1) and the producer's pension (green in Fig. 1). The consumer pension corresponds to the difference between the equilibrium price $p^*$ and the (inverse) demand curve $P(q)$. These differences summed up over all consumers of the demand function $N$ yields the consumer pension. Similarly, the producer's pension corresponds to the sum of the difference between the equilibrium price $p^*$ and the demand curve $N$ up to the equilibrium quantity $q^*$ in an equilibrium state $K$. 
**Fig. 1: Qualitative representation of pensions.**

For existing infrastructure there are no intervals defined that accept unavailability. For repairable systems, which include real estate, general statements can be made in accordance with DIN 60812 with regard to the criticality assessment. Thus, the unavailability of the system is a measure for assessing system criticality.

With an object of infrastructure, the criticalities of all functional units can be correlated ordinally to the functional operation of the object.

**Approach of Research**

In Figure 2 the meaning of failure at the macroeconomic level and at the object-specific level are plotted qualitatively. Criticality of the macroeconomic system can be derived from this graph occurring at the lowest level within self-contained observation units. Functional units can be regarded as points within the matrix, where the object they belong to is given as an index.

Based on a prioritization according to this macroeconomic criticality, maintenance strategies can be derived. Different strategies require financial resources, but they also influence the availability to varying degree. In the context of efficient maintenance management, critical functional units can thus receive adequate attention.

**Objective of Research**

The aim of this work is to develop a methodology for determining the socio-economic and economic efficiency criteria for prioritising investments in the field of material infrastructure.

**References**

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