Elements of Computational Intelligence

Data Envelopment Analysis

Case study report

Names + Indexes + Group here

1. **Analyzed problem**

We had to analyze efficiency of 4 car garages evaluated on 2 inputs and 2 outputs.

Inputs:

* staff,
* showroom space (100 m2).

Outputs:

* sales (1000s),
* profit (millions).

1. **Chosen model**

The problem stated above has been solved using **Charnes, Cooper and Rhones (CCR)** Data Envelopment Analysis model.

1. **Efficiency scores**

Efficiency scores obtained by model for all car garages are presented in the table below.

|  |  |
| --- | --- |
| **Car garage** | **Efficiency score** |
| Winchester | 0.804 |
| Andover | 1.0 |
| Basingstoke | 1.0 |
| Poole | 0.792 |

1. **Efficient units**

There are **2** car garages which perform efficiently:

* Andover,
* Basingstoke.

1. **Inefficient units**

There are **2** inefficient garages: **Winchester** and **Poole**. To make them efficient they need to reduce their inputs by the following values:

|  |  |  |
| --- | --- | --- |
|  | **Staff** | **Showroom space (100m2)** |
| Winchester | 1.375 | 2.375 |
| Poole | 6.875 | 1.875 |