Doctoral Thesis

Determinant based selection of benchmarking partners and logistics performance indicators

Author(s):
Sennheiser, A.

Publication Date:
2004

Permanent Link:
https://doi.org/10.3929/ethz-a-004844319

Rights / License:
In Copyright - Non-Commercial Use Permitted
Determinant based selection of benchmarking partners and logistics performance indicators

THESIS
submitted for the degree of
DOCTOR OF TECHNICAL SCIENCES
of the
SWISS FEDERAL INSTITUTE OF TECHNOLOGY
ZÜRICH

submitted by
ANDREAS SENNHEISER

SWISS FEDERAL INSTITUTE OF TECHNOLOGY

born on July 9th 1974
Citizen of
Freienstein (ZH), Glarus (GL)

Accepted by proposal of
Prof. Dr. sc. math. Paul Schönsleben
Prof. Dr. h.c. mult. Dr.-Ing. Hans-Peter Wiendahl

2004
Summary

Benchmarking initiatives are often criticized for promising only limited improvement potential, as soon as the choice of possible benchmarking partners is restrained to one industry. In addition, the influences of performance indicators on higher corporate targets is, in many cases, not intuitively comprehended. The aim of this work is, first, to develop a concept for the efficient selection of benchmarking partners. Second, the aim is to elaborate an approach to identify suitable performance indicators, that take the specifics of the company's logistics into account.

The main result of this thesis is a concept, which allows companies to characterize their company logistics, with the help of characteristic features. It further helps the user to identify potential benchmarking partners via the assignment of a company type. With the performance indicators assigned to each company type, a basis for comparison is suggested.

The innovation of this work is based on three main pillars:

1. The target system of SCDD, which depicts influencing factors of the logistics on the business success, positions performance indicators into a cause and effect context. This is achieved by assigning feasible performance indicators to target areas measuring the respective achievements (outcome measures). Further, performance indicators, which have an influence (either positive or negative) on the achievements of the targets (performance drivers), are assigned to the target areas.

2. To characterize the logistics of a company, 26 characteristic determinants in the areas product, market and production were defined and raised in more than 50 companies. It was possible to detect determinant values, which correlate with high significance. A further aggregation of these determinants leads to four company types. These types are abstract role models, grouping existing companies according to their comparability of logistical challenges. It was shown, that real companies match the clusters to a high degree, and, that companies, which are assigned to the same cluster, are valid benchmarking partners.

3. The third pillar of the innovation is the development of a heuristic, which analyses the relevance of each performance indicator, given the characteristic features of a company. This heuristic was applied to each company type, resulting in a tailored set of prioritized performance indicators for each type.

In the case studies, raising the characteristic determinants of a company's logistics has shown to be very intuitive for the user. The determinant values were judged to be well suited to characterize the principles of the company's logistics and the evolving characteristic challenges. Finally, the performance indicators suggested for the companies were measured and rated as being highly relevant, and in many cases critical to business success.