

BWK

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Neue Chancen für Messstellenbetreiber

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Messstellen- und Messzugangsmanagement

Gerätmanagement

Datenverwaltung

Kundenportal

Abrechnung

mit Special „Kraftwerke und Netze“

Titelthema

IT für Messstellenbetreiber und Messdienstleister

Energiewirtschaft

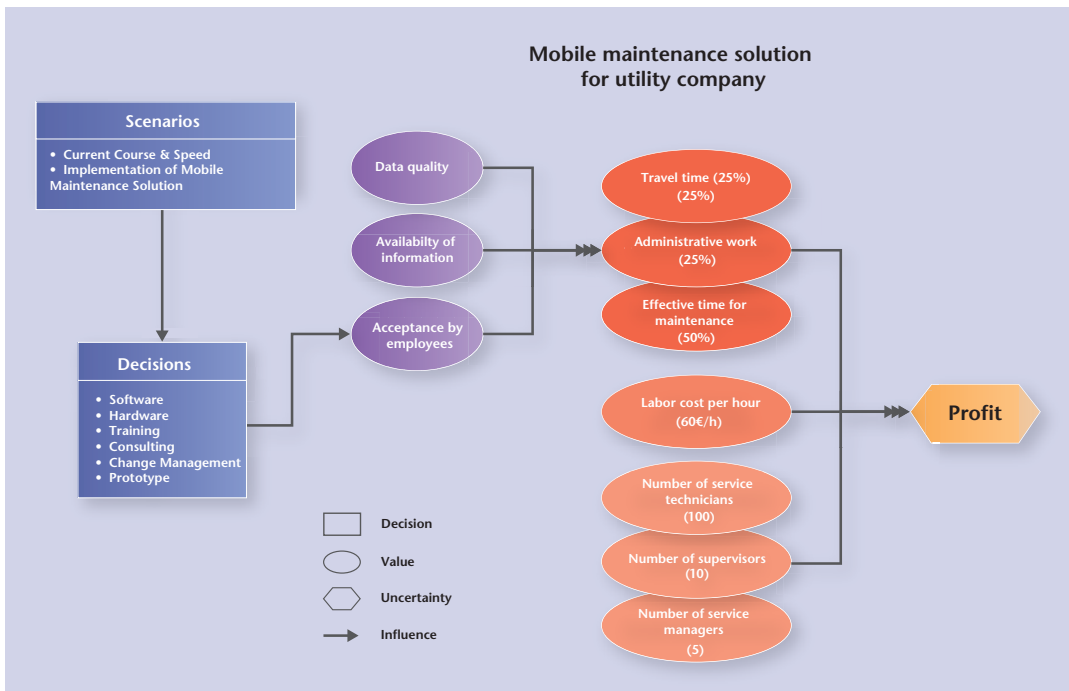
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Dampferzeuger für Kohlekraftwerke:
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Cost-benefit analyses enable companies to evaluate a project's potential for success. The figure shows an Influence Matrix of the mobile maintenance solution project for a utility company.

Business Case for mobile maintenance solutions

Costs versus Benefits

Mobile IT solutions for the maintenance of plant and equipment can reduce costs. However, due to high initial investment and interference with familiar workflows there are also risks involved. The acceptance by service technicians is a major success factor and must be considered in a solid cost-benefit analysis. The following article presents the methodology and key insights of a real Business Case for a utility company.

The mobile solution tackles common sources of error and cost drivers (i.e. unnecessary journey time, redundant maintenance, and poor data quality). It uses digital documents which can be accessed by service technicians and managers all the time via Personal Digital Assistants (PDA). Thanks to its GPS feature the maintenance sites can be easily located and plant and equipment can be maintained correctly. The error-prone manual data entry and transfer is avoided. These benefits are to be evaluated against costs of €540,000. A Business Case that offers reliable statements on cost reduction and risk requires a specific methodology. In order to capture all factors that impact profit an Influence Matrix is constructed. An Influence Matrix consists of five elements: Values, scenarios, decisions, un-

certainties, and influences (see figure). In this case profit is the value. The project to be evaluated is the implementation of a mobile maintenance solution. This is the new scenario which is compared to the current scenario, which assumes no changes are made. Decisions are all aspects of a project that can be controlled. This includes the choice of hardware, software, prototype, training, consulting, and change management. Uncertainties are all elements of a project that are not controllable within the next three years. This includes data quality, availability of information, acceptance by employees, journey time, administrative work, effective maintenance time, labor cost per hour, and number of employees required. The influences of the elements between each other are highlighted using arrows. The Influence Matrix outlines the struc-

ture of the financial model, which calculates the profit of the mobile solution. All relationships between the Influence Matrix's elements are reproduced as formulas in the financial model. As there is no data available yet for future years the missing data is collected in expert interviews. The experts are usually employees of the company and therefore know the workflow and specific environment best.

A risk and sensitivity analysis validates the results of the financial model statistically. A Monte Carlo simulation shows the range of possible results within the first year with a probability of 90%: profit will be between €55,184 and €345,367. The risk factors are identified using a tornado chart. The greatest risk when implementing the mobile solution is the employees' acceptance. The variation of this factor can change the final result by plus €100,000 or minus €124,000. The initial assumption that investment cost would be the highest risk factor proves to be false as it has the lowest risk.

The potential cost savings can only be realized if the employees' acceptance is considered from the beginning of the implementation process. Ensuring this can lead to a cost reduction of €601,200, which means a profit of €211,200. Since the investment is already paid back within the first year, the cost savings over a period of the three years will be over one million Euros.

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