Aalto University
School of Science

TU-E2040 Management of external resources (3-5 cr)
Case-workshop # 2

Task 1: Analysing total costs of ownership – Case of KT Apparel lighting

Case: Conducting TCO analysis

You: director of strategic procurement

Company: KT Apparel, high-end specialty retailer

Focus: lamps for lighting the 2.200 stores of the company

Case KT Apparel

Speciality retailer

- 2200 stores
- Focus on energy management

Identidfied opportunity

- Replace existing lamps with ones with improved energy-efficiency and lighting levels

How do the identified alternatives compare in terms of total costs?

	Current halogen	Alternate halogen
Watts per hour	60	50
Lumens	800	920
Lifespan (hours)	3000	5000
Price ($)	3.15	5.67

- ❑ Annual store hours: 4.200 hrs
- ❑ Average annual expenditure for halogen lamps in all stores : $ 1.2 million
- ❑ Annual energy cost for all stores: $ 36 million (of which lighting is a substantial part)
- ❑ TCO calculation for **annual cost per socket**

Purchase of lamps: Total cost of ownership

- **Main elements**
  - Price
  - Acquisition costs
    - Delivery costs
    - Installation costs
  - Cost of use
    - Energy costs
- **Main drivers**
  - Energy consumption
  - Lifetime of the lamps

In this exercise you compare the total cost of the current and alternate halogen based on these total cost elements and drivers

Your first task is to calculate the normalized price of the current and alternate halogen

- In the calculation you take account how many lamps are consumed annually in the two options (current/alternative). The result of the calculation is the annual price of lamps per socket.
- What can you notice when comparing normalized prices with the listed prices?

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Sower & Sower (2015). Better Business Decisions Using Cost Modeling, Second Edition

Next, calculate the annual delivery costs of current and alternate lamps per socket

- ❑Delivery procedures for current and alternate lamps are similar and packing materials, weight and mode of shipment are comparable
- ❑As the new lamp has longer lifespan, the costs for shipping need to be calculated
- ❑Average case delivery price: $ 5.00
- ❑Quantity per case: 12

- The result of the calculation is the annual delivery cost/socket of the two alternatives

Your third total task is to calculate the installation costs of current and alternate halogens

- Focus on lost sales (maintaining lamps instead of selling)
- Store associates spend 1 hr / week changing lamps
- If this time was used for sales, sales would increase $ 100, indicating a profit increase of $ 20 per store per week
- Total number of stores 2200
- Total sockets in all stores 272 066

	Current halogen	Alternate halogen
Lifespan (hours)	3000	5000

The result of the calculation is the lost profit per socket if the company remains with the current model (if the alternative lamp is NOT selected)

The fourth task is to calculate the energy costs

	Current halogen	Alternate halogen
Watts per hour	60	50

- ❑ Average costs stores are paying for energy: $ 0.10/KWh
- ❑ Annual store hours: 4.200 hrs

The results of the calculation is the annual energy cost per socket of current and alternate halogen.

Collect the results of the four calculation into the table below

	Current lamp	Alternate lamp	Difference
Normalized price			
Delivery cost			
Installation cost (as opportunity cost)			
Energy cost			
Total annual cost / socket			

Summary: what are the annual savings if the alternate halogen is selected?

	Socket TCO	Total sockets in stores	TCO cost for all stores
Current		272066	
Alternate		272066	
Annual savings			

The correct result is that the firm will save **$ 2.024.171** if they select the alternate halogen. Check your calculations if your result is different.

Last, discuss the following questions

How does the difference in lighting efficiency of the two alternatives affect TCO?
What would be the effects of choosing the alternate halogen on work safety?