

# Evaluation Models for Public Procurement

## Sweden



# Gunnar Goblirsch

- In Public procurement since 1980
- Head of procurement department in County Council of Soermland for more than 10 years
- Awarded public purchaser of the year in 2009
- Head of unit responsible for buying all medical equipment to the new hospital New Karolinska Solna (NKS) in Stockholm.

# Explanations

You use BPQR

*Best Price Quality Ratio*

to find MEAT

*Most Economically Advantageous Tender*

*Note:*

*BQCR Best Quality Cost Ratio would have been even better since mathematically you divide Quality (Outcome) with Cost.*

# Nobel Prize Banquet in Stockholm 2014

## Example of a procurement using BPQR





# Evaluation models in normal life

Which evaluation model do **You** use when you buy:

- Meat for your evening meal?
- A new car?
- A new house for the family?

Normally you calculate how much more you are prepared to pay if a product fulfills all your criteria. That means you translate criteria into money and not money into points.



# Two ways to deal with the problem

When you need to buy something and want to compare cost and quality in public procurement there is usually two ways you do it:

- Translate costs into points (hard)
- Translate quality into costs (easier)



# Research reports in Sweden concerning BPQR models

<b>2004</b>	<b>Methods for evaluation of price and quality in public procurement</b>
	Anders Lunander (assistant Professor) Arne Andersson (professor)
<b>2009</b>	<b>To evaluate the tenders</b>
	Mats Bergman (professor) Sofia Lundberg (assistant professor)
<b>2009</b>	<b>A logical trap: Relative scoring of price for tender evaluation in public procurement</b>
	Anders Lunander (assistant Professor)

# Research reports say

Models appropriate for public procurement:

- Lowest cost
- Predetermined cost
- Absolute pricing of the award criteria

Models not appropriate for public procurement:

- Relative models



# Lowest cost

Procurement to lowest cost does not mean that you are buying goods and services with low quality.

Low requirements => Low quality

High requirements => High quality

Focus on total cost and not on price!

Demands are blunt instruments!

# Procurement using fixed cost

The evaluation is based solely on the buyer getting as much as possible for a predetermined cost.

Demands and criteria can be used.

Quality criteria can but must not be priced.



# Fixed cost

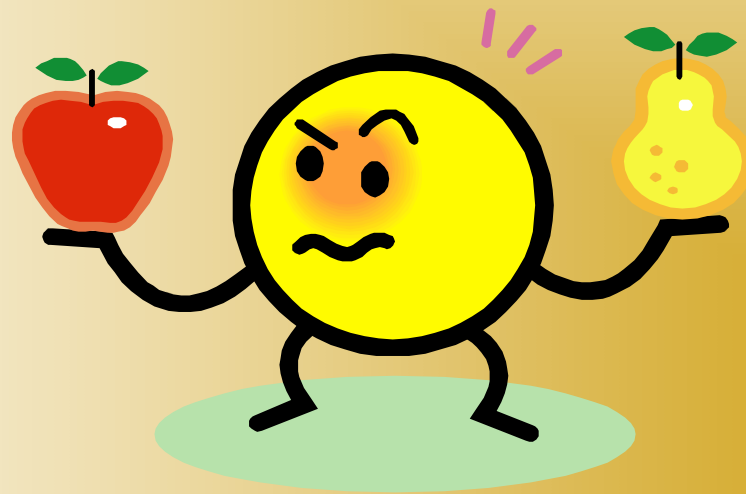
When evaluating tenders you don't have to relate them to each other.

The tender with the highest quality wins.

Does not necessarily mean you get high quality.

# BPQR

## Best Price Quality Ratio



# Weighting of cost and quality

Model	Cost	Quality criteria
Lowest cost	100 %	0 %
BPQR	99 – 0 %	1 – 100 %
Fixed cost	0 %	100 %

# Relative scoring of cost

Jan Telgen, Professor of Applied Mathematics and Professor of Public Procurement at the University of Twente.

## **Price - quality ratio**

Fundamentally wrong, but not a big deal

## **Relative scoring**

Professionally extremely stupid; must be amended



# Weight of quality and cost

- **Weight of quality + weight of cost = 100 %**
- **The cost is absolute and will never change**
- **The weight determines the monetary value of quality**

**Meaning that if your model relates to lowest cost then the total monetary value of quality for the tender with the lowest cost is:**

**Lowest cost x (Weight of quality / Weight of cost)**

# Relative scoring of cost Ranking

**The lowest cost gets the highest possible score, the highest cost gets the lowest possible score, the rest receive points in relation to them.**

- **Ignores the real cost differences between the tenders**
- **The specified weight is not correct**
- **Can't handle a procurement with only two tenders**

# Relative scoring of cost

## Linear relation to lowest cost

Tender with lowest cost gets the highest score, the other tenders score less in relation to the lowest cost by using a ratio calculation.


*Formula:  $1 - ((\text{Highest cost} - \text{Lowest cost}) \text{ divided by the lowest cost})$  multiplied by  $(\text{highest possible score} - \text{lowest possible score})$*

- Linear scale for cost points
- Lowest cost determines the outcome
- **The score for cost can't go below minimum points**
- A zero cost tender is impossible to handle
- Impossible to prejudge values for the criteria

# **Relative scoring of cost**

## **Linear relation to lowest cost**

Now look at Excel Relative Linear model  
and why it should not be used



# Relative scoring of cost

## Non-linear relation to lowest cost

Tender with lowest cost gets the highest score, the other tenders score less in relation to the lowest cost by using a ratio calculation.

*Formula: Lowest cost divided by the tender cost multiplied by (highest possible score – lowest possible score)*

- **Non-linear scale for cost points**
- Lowest cost determines the outcome
- The specified weight is not correct, weight is not the same for all tenders
- Can lead to tactical bids, eg. zero tender
- Impossible to prejudge values for the criteria

# **Relative scoring of cost**

## **Non-linear relation to lowest cost**

Now look at Excel Relative Non-linear model  
and why it should not be used



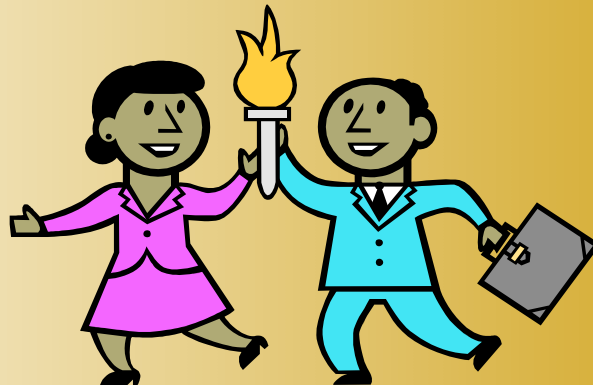
# Absolute monetary model

## Absolute pricing of criteria

Have been in use since 2006 in Sweden.

Subtract the monetary value of criteria that are met.

*Alternative: Add the monetary value of the criteria that are not met*





# Using the absolute monetary model

<b>Criteria</b>	<b>Absolute value</b>	<b>%</b>
Criterion 1	150 000 EUR	30,0 %
Criterion 2	125 000 EUR	25,0 %
Criterion 3	100 000 EUR	20,0 %
Criterion 4	75 000 EUR	15,0 %
Criterion 5	50 000 EUR	10,0 %
<b>Total value</b>	<b>500 000 EUR</b>	<b>100,0 %</b>



# Benefits of the model

- Weight of criteria becomes clear to everyone
- Raises involvement in the project
- Often provide completely new weighting
- Can handle zero bids
- Tenders does not influence each other
- The only BPQR method that really works on electronic auctions



# Using the absolute monetary model

- Have been used since 2006 in Sweden
- Was used in the large procurement for the operation of subways and buses in Stockholm
- Has been approved in two court cases in connection to these procurements
- Has been used to procure > 95 % of the medical equipment for New Karolinska Solna (NKS)
- Is used by the state, the communities and county councils in Sweden
- Used by Medtech Europe in their new model

# **Absolute Monetary model**

Now look at Excel Absolute Monetary model  
and why it should be used