Pareto chart

Menu:	QC.Expert	Pareto analysis

Pareto analysis is used to judge frequency and importance of various items, e.g. faults, errors etc. The Pareto chart is based on ordering various items by their amount. The Pareto 80/20 rule says that 80% of problems is caused by 20% of causes. The rule has been found approximately valid in many practical situations. When expenditures or financial losses are known, the Pareto analysis can be performed on them as well.

Data and parameters

At least two data columns are required. One of them contains names of items as character strings, the other contains their respective frequencies. When cost analysis is required, an additional column has to contain cost values (e.g. costs incurred by various type of damage as items). The cost analysis is performed when the *Cost analysis* option is checked in the Pareto dialog chart, and *Cost* column is specified. When the *Merge others* option is checked, items with small values are merged into the Other category while keeping the Other category smaller than any other individual category. This might be useful when there is many items. An example of the Pareto analysis data:

Defect Cause	Count per week	Repair Cost
Flange Packing	40	5
Corrosion A	3	60
Corrosion B	35	20
Turn-cock	14	130
Cover B	5	52
Nuts	62	13
Condenser	21	28
Ball bearing H	5	300
Ball bearing M	17	220
Hose	36	40

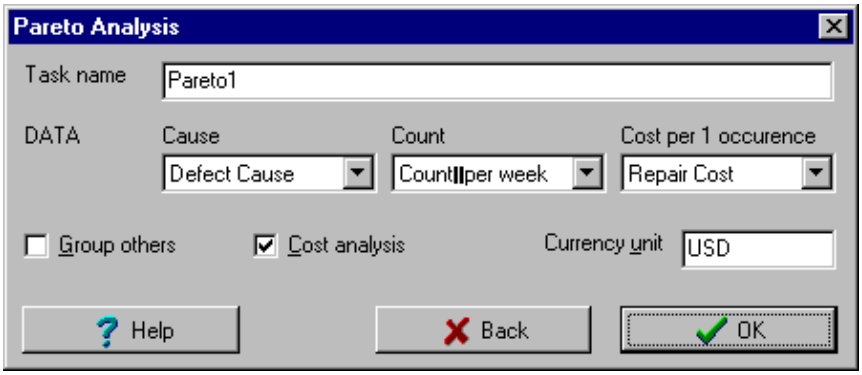


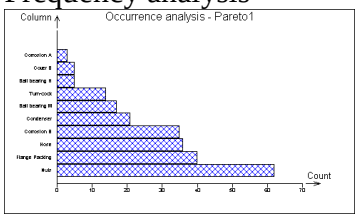
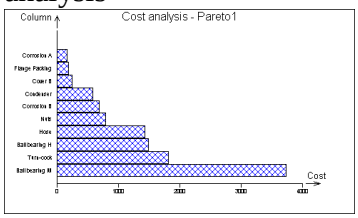
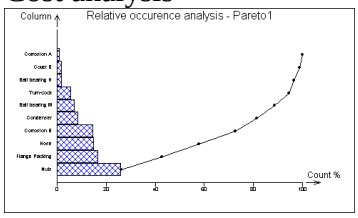
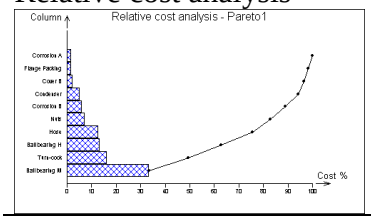
Fig. 1 Pareto chart dialog panel

Protocol

Cost unit	Cost currency unit as a text inputted in the panel
Frequency table	Items sorted by their frequencies.
Item	Item identification (e.g. a damage type).
Number	Frequency of items.
Cost	Inputted costs for individual items. This *is applicable only when the Cost analysis option is checked*)
Item proportion	Relative frequency of items.
Cumulative item proportion	Cumulative item frequency.

Total cost	Total cost for each item.
Cost proportion	Relative cost for each item..
Cost table	This table contains the same columns as the frequency table, with cost information used in place of frequencies.
Merge	This table is created only if Merge was checked in the dialog panel
Item frequency	Frequency for each item.
Item proportion	Relative frequency for each item.
Cost analysis	Inputted costs for individual items. This *is applicable only when the Cost analysis option is checked*).
Relative cost analysis	Relative costs (in % of the total cost). This *is applicable only when the Cost analysis option is checked*).

Graphs

Frequency analysis 	Items ordered by their frequencies.
Relative frequency analysis 	Items sorted by their relative frequencies (total number of all items is 100%). Ordering is the same as in the previous chart. The cumulative frequency curve is also plotted.
Cost analysis 	Items sorted by their costs. The total item cost is the product of the item frequency and the cost of one item unit.
Relative cost analysis 	Items sorted by their relative costs, ordering is the same as in the previous chart. The cumulative frequency curve is also plotted.