# Ishikawa fishbone diagram
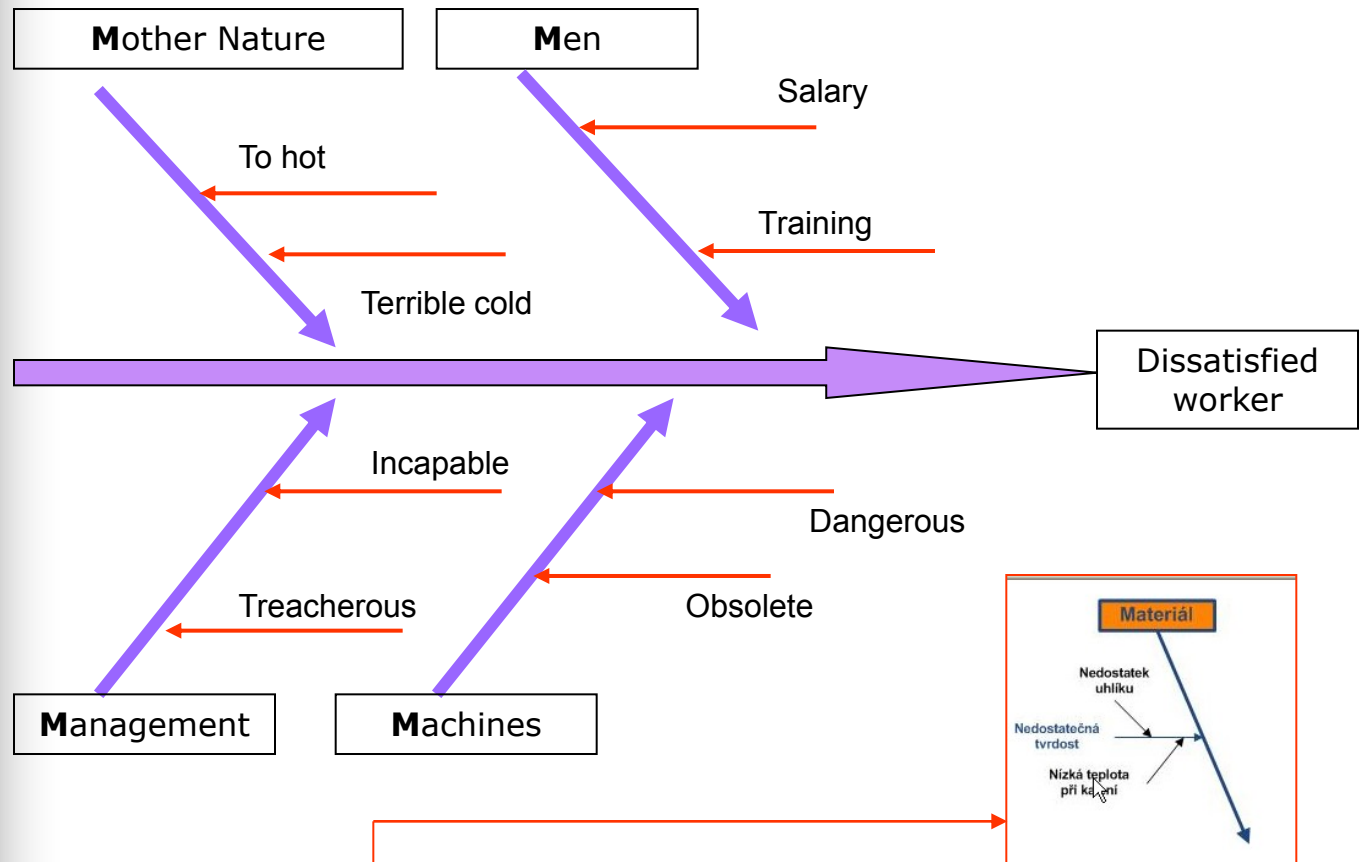
## Skorkovský ESF MU KPH

# Introduction (FBD= fishbone diagram)

- FDB is a tool to find out relationships:

      Cause  ➡  Effect

- Use in QM especially in automotive industry
- On of the toot set used to create so called 8D report (8 disciplines=FBD+5WHYs+PA+QM)
- Another tool : 5  WHYs – will be cleared later
  Another tool : PARETO=PA analysis will be shown later

# Fishbone diagram



**M**other Nature     **M**en

Salary

To hot

Training

Terrible cold

Dissatisfied worker

Incapable

Dangerous

Treacherous     Obsolete

**M**anagement     **M**achines

Materiál

Nedostatek uhlíku

Nedostatečná tvrdost

Nízká teplota při kalení

(Methods, Material, Manpower, Measurement, Machines)

# Some chosen problems which could be find out during ERP support process I

- long response time to requirements
- requirement is directed to unsuitable consultant
- bad documentation about service action (poor log)
- people ask repeatedly same questions at different moments and different consultants are asked
- solution of disputes :complaint- standard service
- payment asked for supplied services
  1. how much (to whom, type of task, type of the error- see diagram
  2. starting time for invoiced services, response time
     1. requirement is handed over till the problem is solved
     2. time of starting solving -solved
     3. start of implementaion of the bad object till end of testing
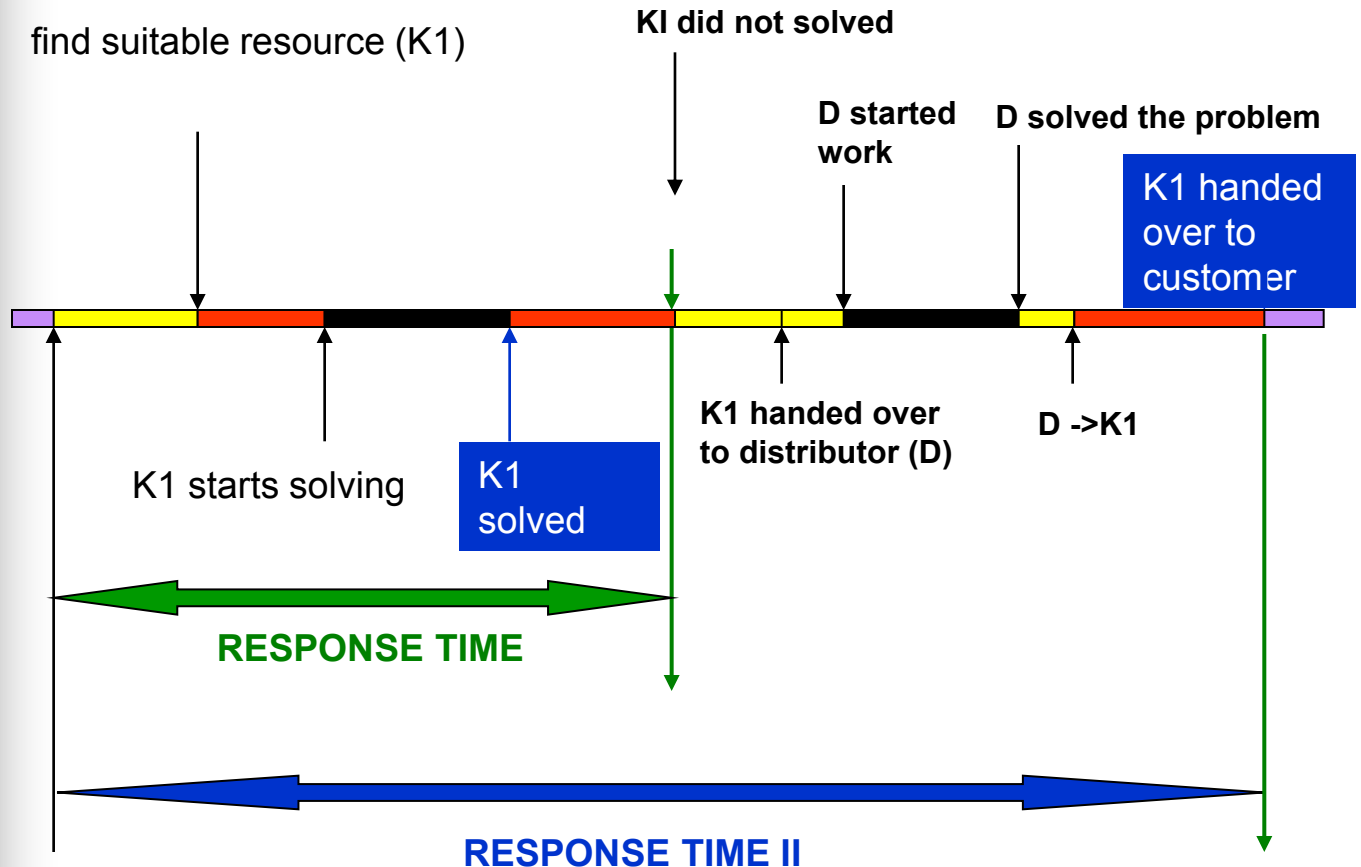     4. training

# Some chosen problems which could be find out during ERP support process I

- bad trainnig methodology
- bad consultants
- bad communication protocol
    1. telephone
    2. e-mail
    3. SKYPE
- lack of interest of the management of both parties
- right specification of reaction time
- specification to the error types and related response times

- response time of the distributor (ERP integrator ERP)
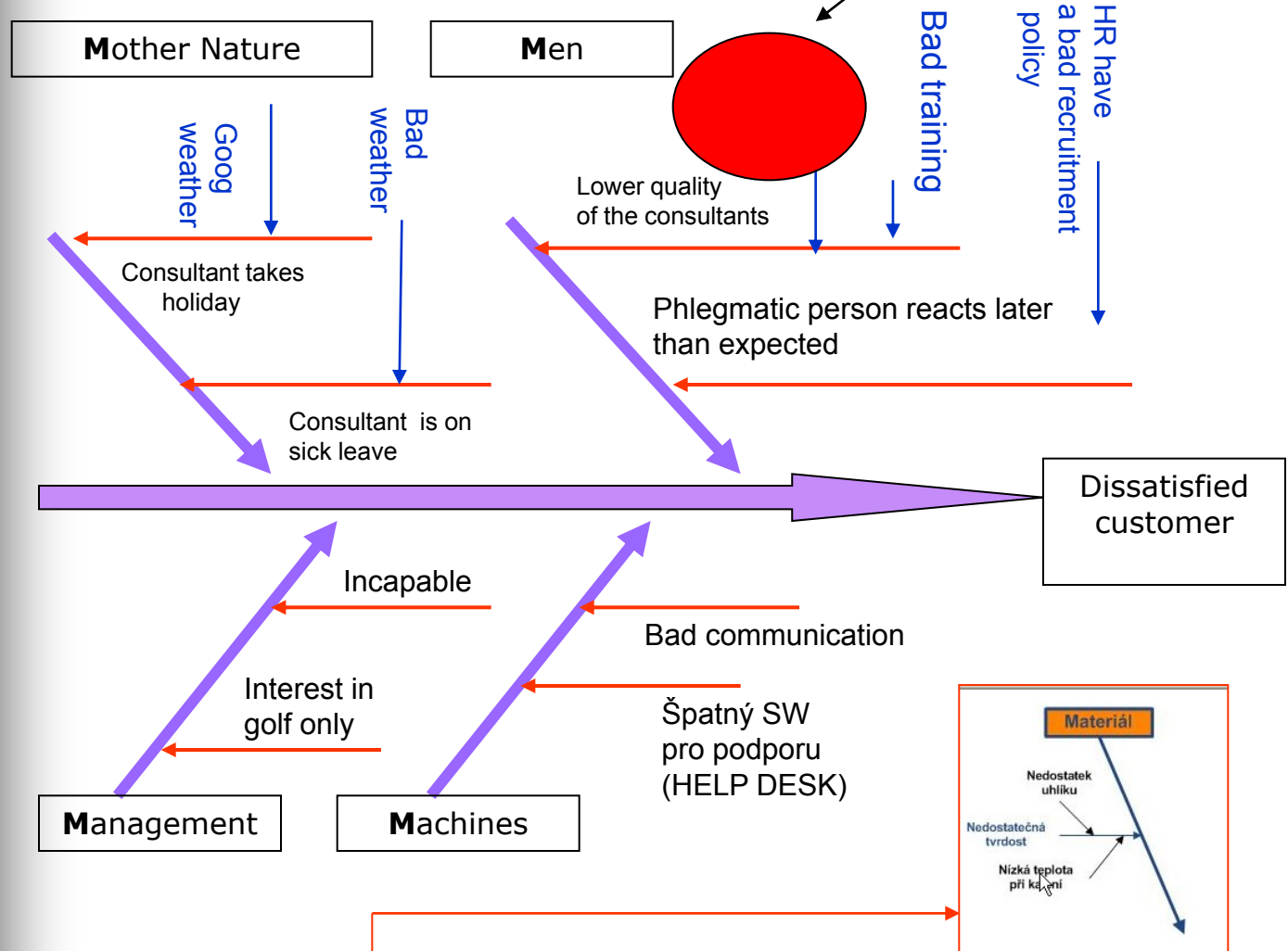
# Diagram – response time

find suitable resource (K1)

KI did not solved

D started work

D solved the problem

K1 handed over to customer

K1 starts solving

K1 solved

K1 handed over to distributor (D)

D ->K1

RESPONSE TIME

RESPONSE TIME II

handed over requirement

= active work

= idel time

# Fishbone diagram-podpora

heart of the problem

**Mother Nature**

**Men**

Goog weather

Bad weather

Bad training

HR have a bad recruitment policy

Lower quality of the consultants

Consultant takes holiday

Consultant is on sick leave

Phlegmatic person reacts later than expected

Dissatisfied customer

Incapable

Bad communication

Interest in golf only

Špatný SW pro podporu (HELP DESK)

**Management**

**Machines**

Materiál

Nedostatek uhlíku

Nedostatečná tvrdost
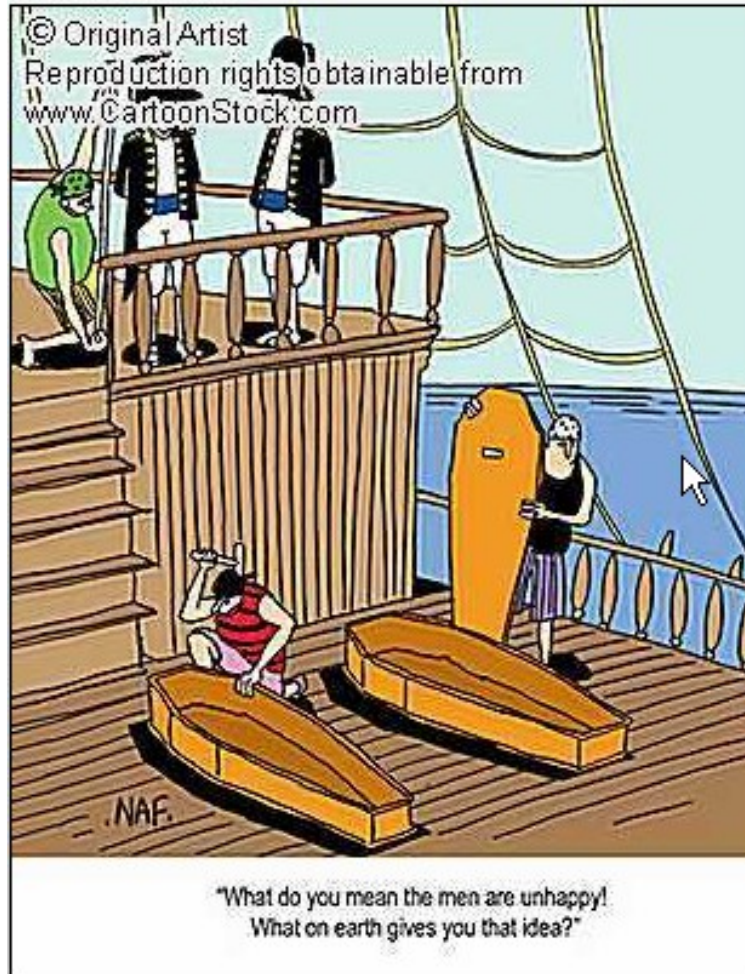
Nízká teplota při kalení

(Methods, **Material**, Manpower, Measurement, Machines)

# Dissatisfied employee I



"EVERYTHING OKAY, PHILLIPS?"
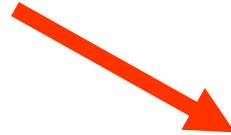
# Dissatisfied employee II

# 5WHYs

- WHY 1 : Why my car had stopped ?
- No petrol in tank i
- WHY 2 : Why i did not have a petrol in my tank ?
- I did not buy in in the morning on my way to work WHY 3 : Why i did not buy a petrol ?
- No money in my pockets
- WHY 4 : Why no money i my pockets?
- Evening poker
- WHY 5 : Why i did not win a poker game?
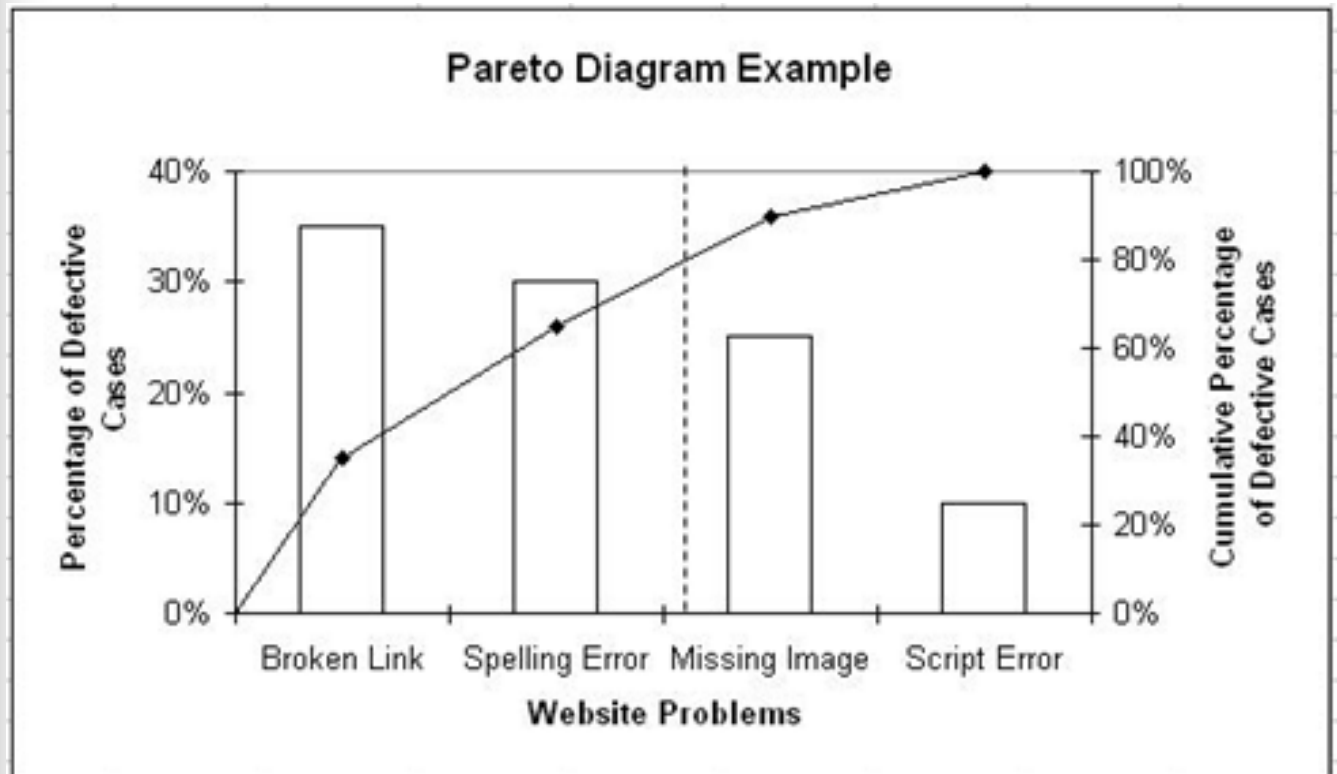- I do not know how to bluff!
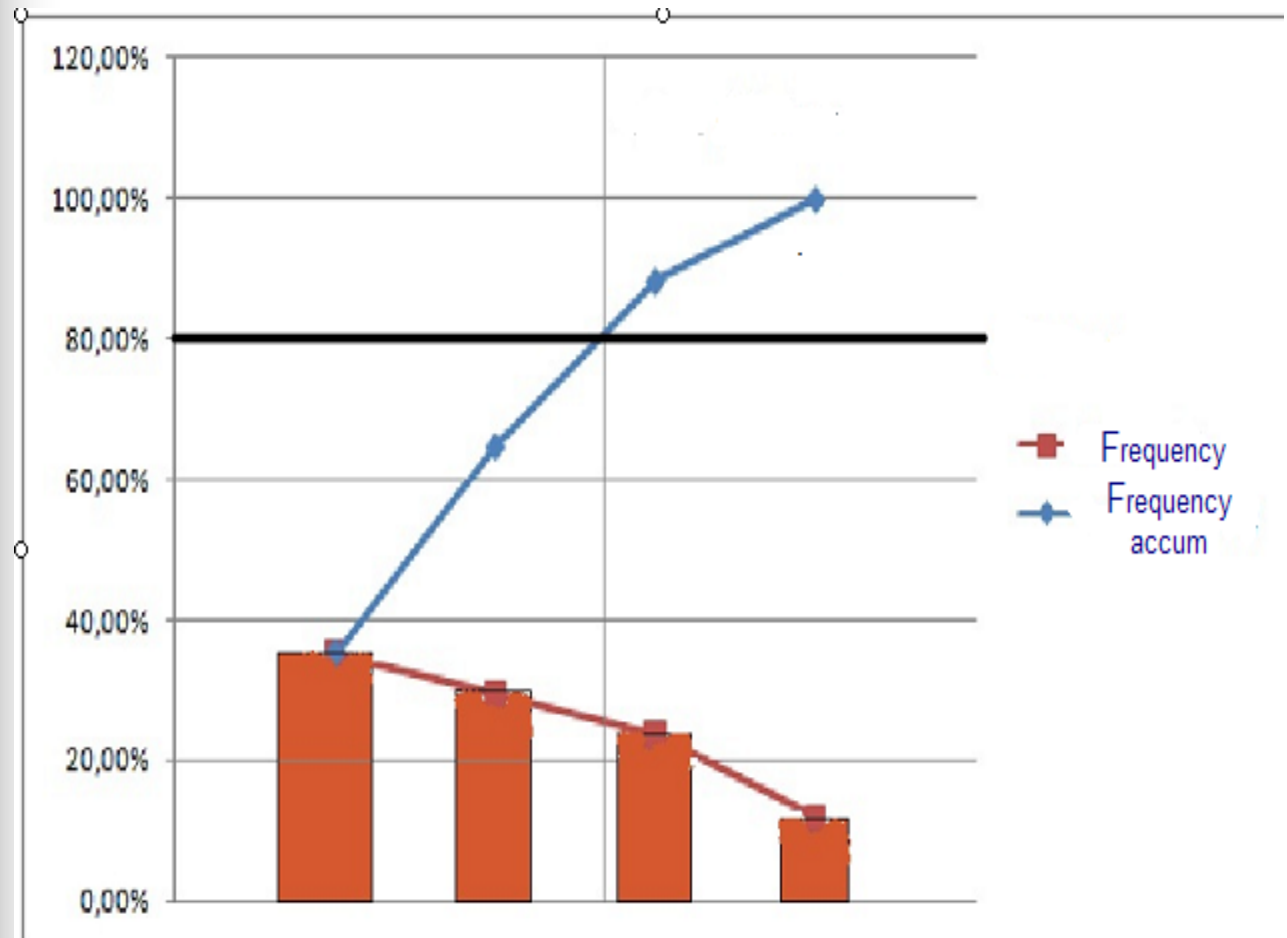
# 5WHYs



Cause

Effect

# Pareto analysis I



Pareto Diagram Example

# Pareto analysis II - data

|  | Frequency | Freq (%) | Freq accum(%) |
|---|---|---|---|

- Difficulty
- Resignation
- Underestimation
- Low motivation

- 6 - ( 35,29 )- ( 35,29 )
- 5 - ( 29,41 )- ( 64,71 )
- 4 - ( 23,53 )- ( 88,24 )
- 2 - ( 11,76 )- ( 100,00 )

# Pareto analysis III

Vilfredo Pareto in person…