

COST OF QUALITY

Is it a grenade ?



Why it is a grenade?

- ▶ Flexible Formula's (very flexible) for calculation
- ▶ Every one will explain you the best way how to calculate for “real” figures
 - ▶ Most of the time ,for other departments
- ▶ Nobody will like the figures
- ▶ Each one will use his “Shelter” and provide full explanation...
 - ▶ Why he is OK and the others ... are almost



What is the “Cost Of Quality” ?

- ▶ Is not the price of creating a quality product or service.
- ▶ **It is the cost of *NOT* creating a quality product or service.**
- ▶ Every time work is redone, the cost of quality increases.



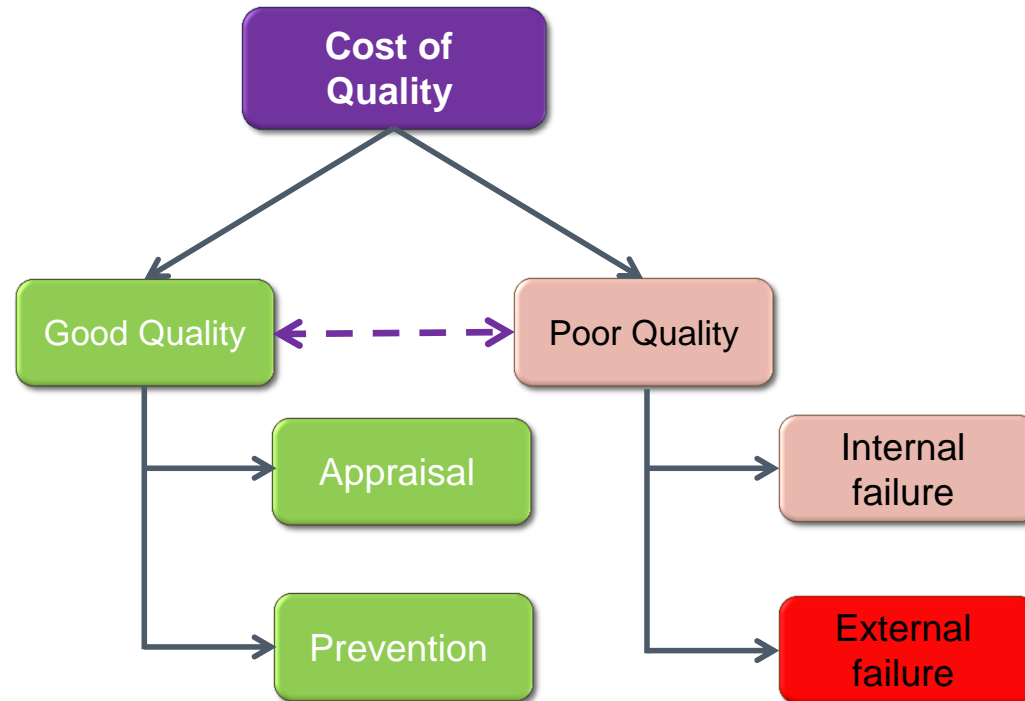
How the cost of quality is classify?

Generally into four categories:

- ▶ Appraisal
- ▶ Prevention
- ▶ Internal Failure
- ▶ External failure

My approach, “Cost Of Quality” is not only the failure , it is also the steps you take to avoid the failure.

How the cost of quality is shared



In Advance (Precautions good quality)

- The table

Appraisal	Prevention
<ul style="list-style-type: none">➤ Design review➤ Field Testing➤ Checking & testing purchased goods and services➤ Training➤ In-process and final inspection/test➤ Product, process or service audits➤ Calibration of measuring & test equip.	<ul style="list-style-type: none">➤ DR for new products (without skips ...)➤ Quality planning➤ Audit (process & product)➤ Suppliers capability surveys➤ Error proofing (Verification &Validation)➤ Capability evaluation➤ Quality improvement team meetings➤ Quality improvement projects➤ Quality education and training

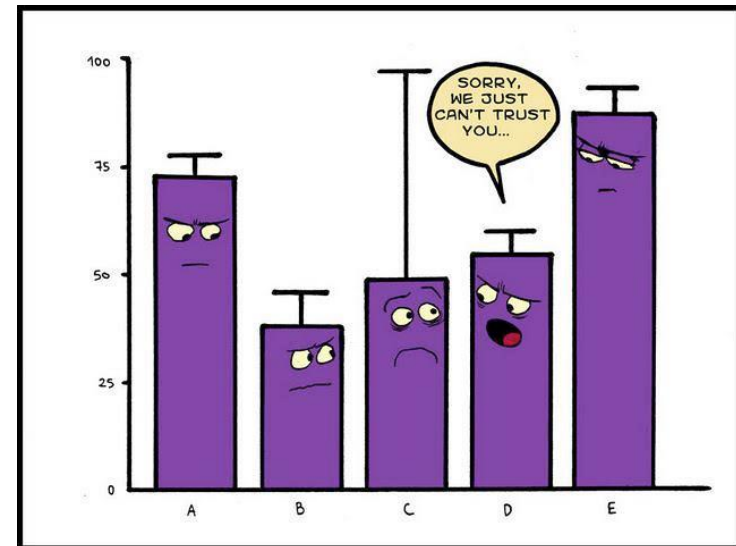
Poor Quality (after release)

- The table

Internal Failure	External Failure
<ul style="list-style-type: none">➤ Scrap➤ Rework➤ Re designing➤ Re-testing➤ Re-inspection➤ Material review (Poor Purchasing)➤ Downgrading➤ Down time➤ Delay➤ Bug fixing➤ ECO & EO	<ul style="list-style-type: none">➤ Complaints➤ R.M.A➤ Repairs➤ Recalls➤ Warranty➤ Customer's disappointment➤ Support services (Technical, logistic and etc.)➤ Losses due sales reductions

Down and Under

- Contract Review
- Sales mistakes
- Cutting edges (DR's, tests, validation...)
- “Tailored” reports

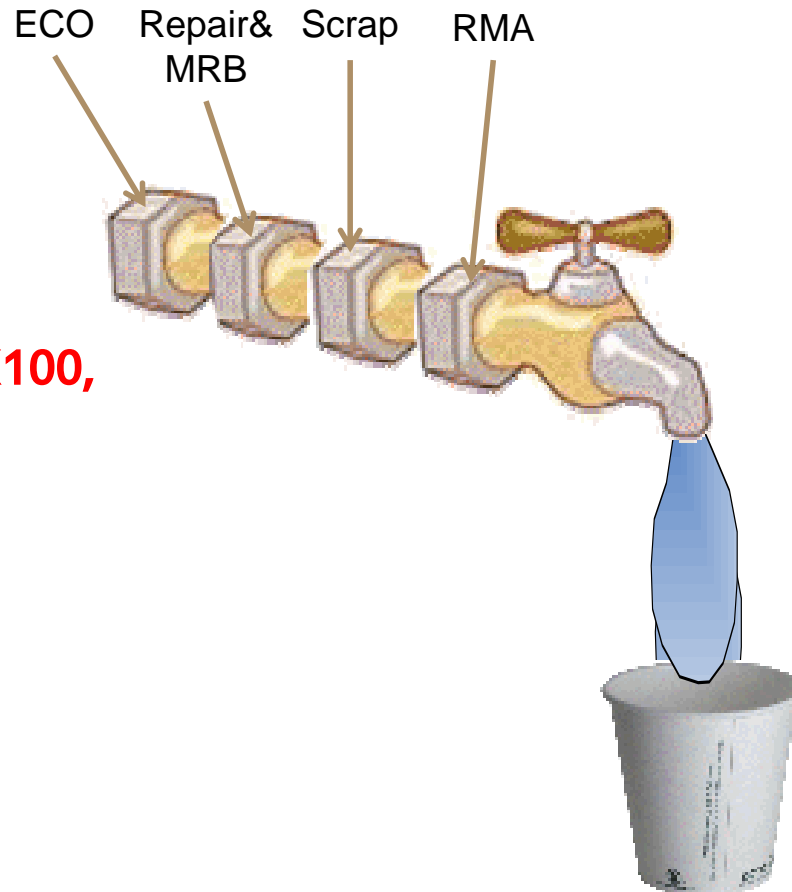


Quality cost leaking

“The tap effect”

Fix it “In house” X10

At the Customers site X100,
If you are lucky



My proposition

- It is a Poker game (gambling is involve & Nothing is free)
- There is a fee for receiving 5 cards
- There is a fee for replacing (up to 3) cards
- There is a fee for every bet (call , raise)



ECO's

- Why we need an ECO?
 - Forgot something, did not check, update, failure ...
- What is the real cost of an ECO ?
 - Internal influence only (cheap ?!)
 - External & Internal influence
 - Project redesign?
 - Eng. Work
 - Stop Production
 - Rework and/or Repair
 - Handling WIP
 - **Handling STOCK**
 - **Recall**

Formula (only recommendation)

- Let's see an ECO
 - Entrance X00 \$ - open the Eng. Tool.
 - Replace cards – direct work only : PCB boards , components, software, for each unit X00 \$
 - Not including work done by R&D , Eng. Technologies and etc.
Might change the figures to X000 and sometimes X0000
 - Bet - 1 ; Handling WIP - X000 – X(7-9)000 \$
 - Bet - 2 ; Handling stock - X000 - X0000 \$
 - La Grande “**FINALE**”
 - Recall , Who can tell?

RMA

- Why we receive an RMA (sad story)
 - Not verify or validate, miss, must supply on time...
- What must be done?
 - Investigation
 - Repair?
 - Replace? (loading the lines, double the BOM cost)
 - Flying to the customer and...
 - Management attention
 - 8D (for yourself or for customer)
 - Reputation (can somebody measure it ?)



Formula (only recommendation)

➤ Let's see for an RMA

➤ Entrance X000 \$ - handling ,excuses and etc.

➤ Investigation; failure reason X000 \$ technicians only

➤ Total entrance can be very high (time, manpower, test equipment and etc.)

➤ Replace cards – Repair Or Replace

➤ The Unit? The units ? The lot ? Or...

➤ The total can be X0000

➤ Bet - 1 - Management attention X000 – X0000\$

➤ Bet - 2 - 8D X000 \$ report , conclusions can lead to ECO's

➤ ECO full price (R&D , Eng. , Operation)

➤ Bet - 3 - Reputation “free no charge” !!!

➤ La Grande “**FINALE**”

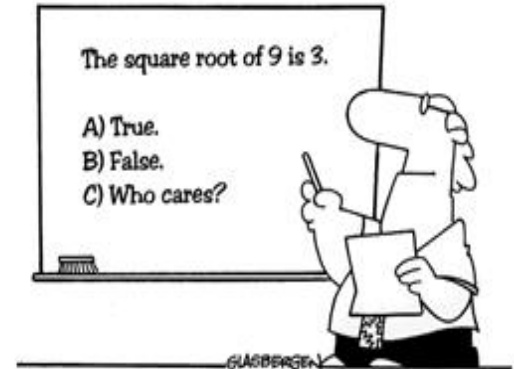
➤ Recall , Who can tell?



To summarize

- If “C” just “give up”
 - If “B” we already talk about it
 - If “A” then I recommend the following
-
- Agree **what** to calculate as Quality Costs
 - Agree **how** to calculate – “the formula”
 - Listen to your colleges (recommended)
 - Show figures only on the agreed area.
 - If You want to expand it, be sure that the majority of the staff understands the need & benefit , reduce the objection
 - Convince the management that “Appraisal” & “Prevention” can save a lot of money , also can be estimated in advance
 - Yes it is a grenade , so take a Shapat’z (flak jacket) ,

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THANK YOU

P.S

