"RESTAURANT BILL EFFECT"

&

SOME APPLICATIONS

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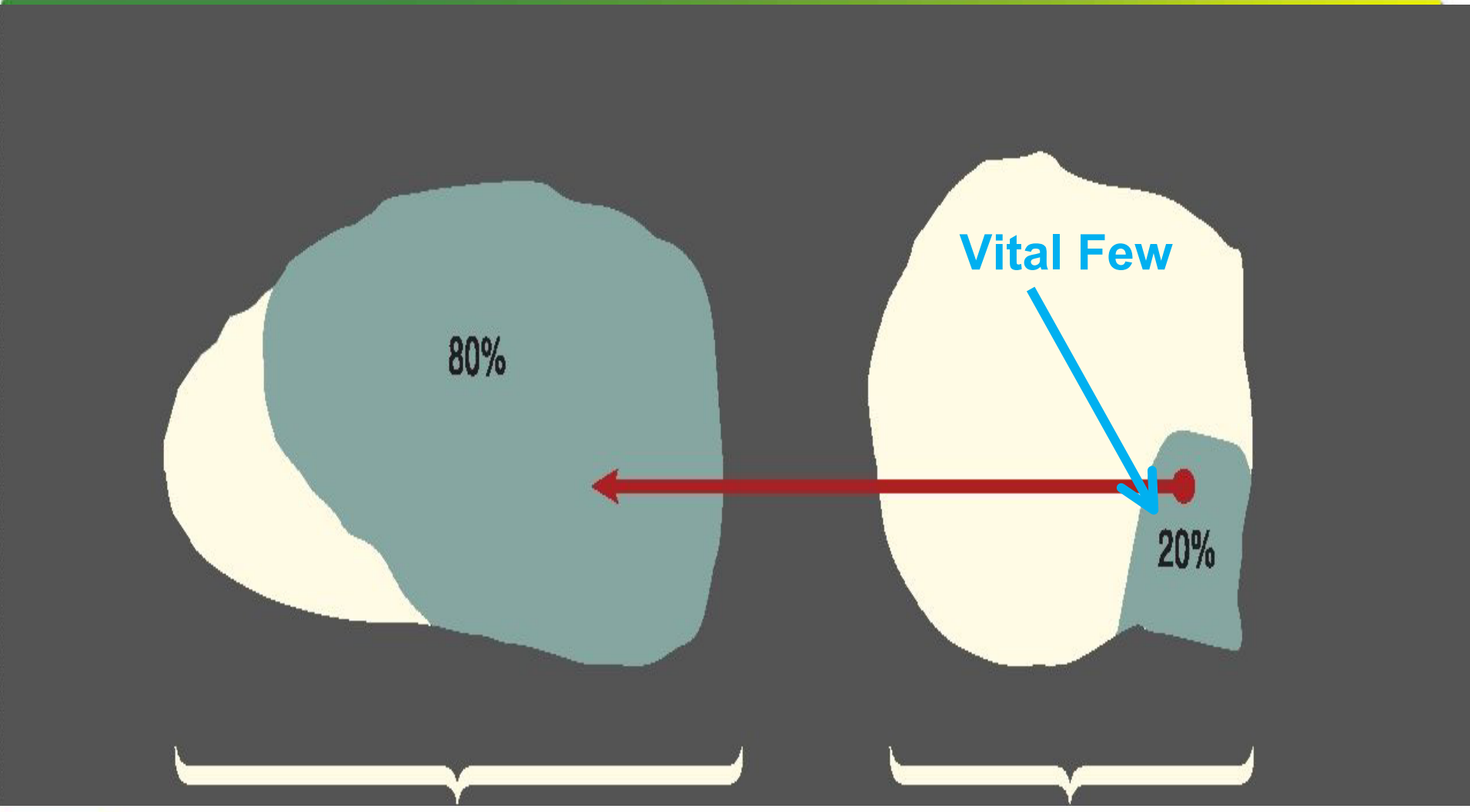
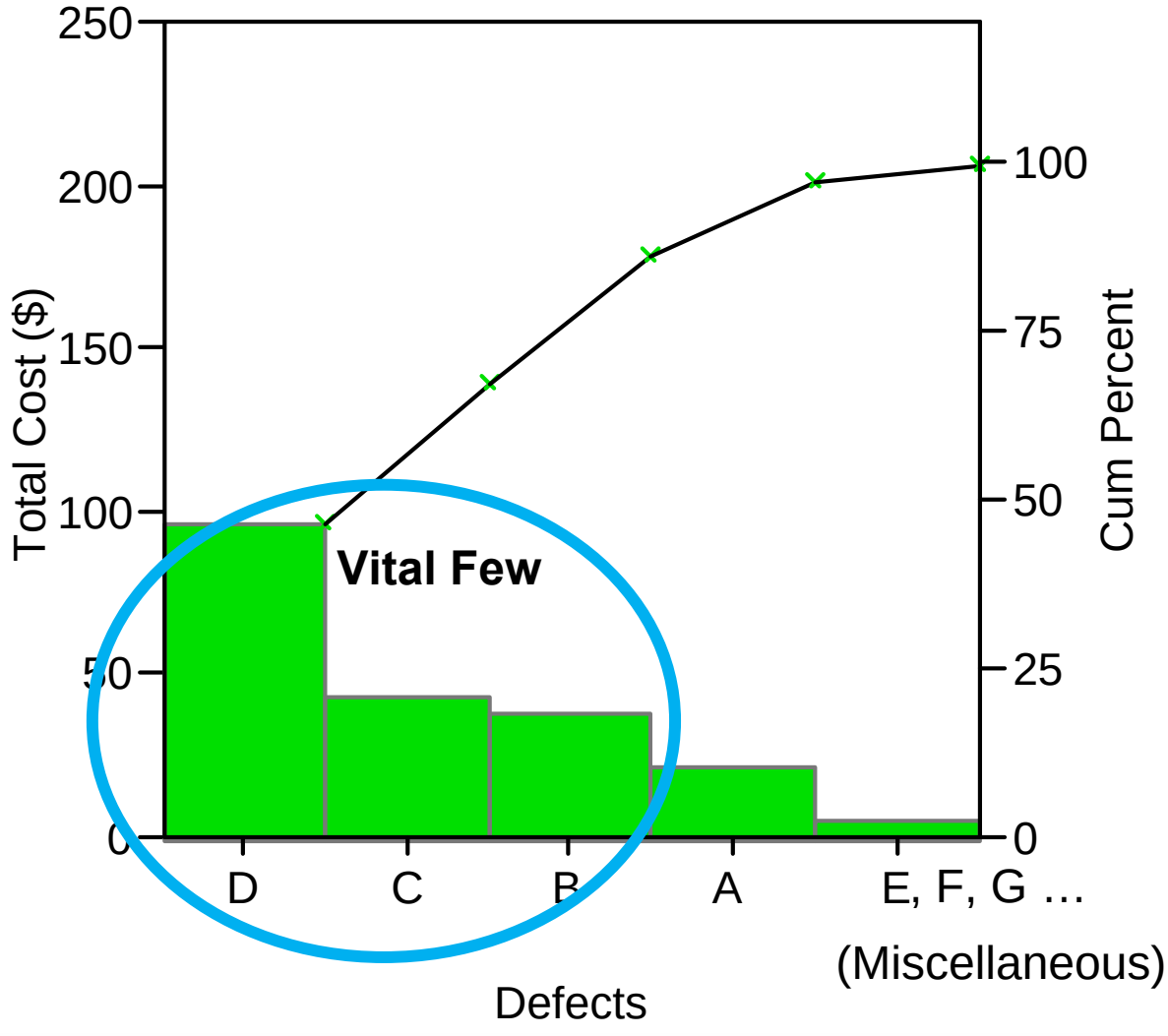
Well-Known “PARETO principle”



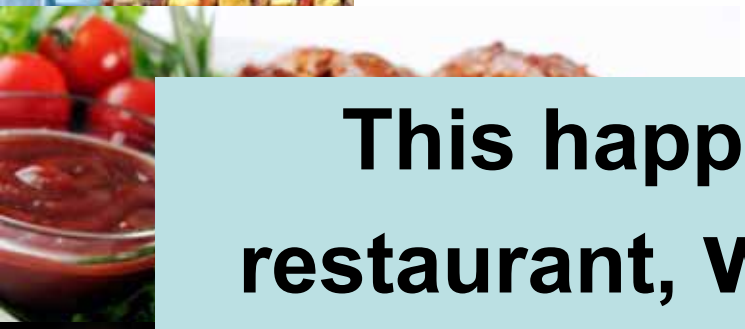
Typical Pareto Chart

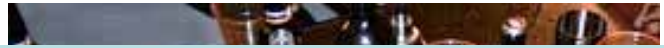
Example for 'Importance (Cost-Weighted)' Pareto



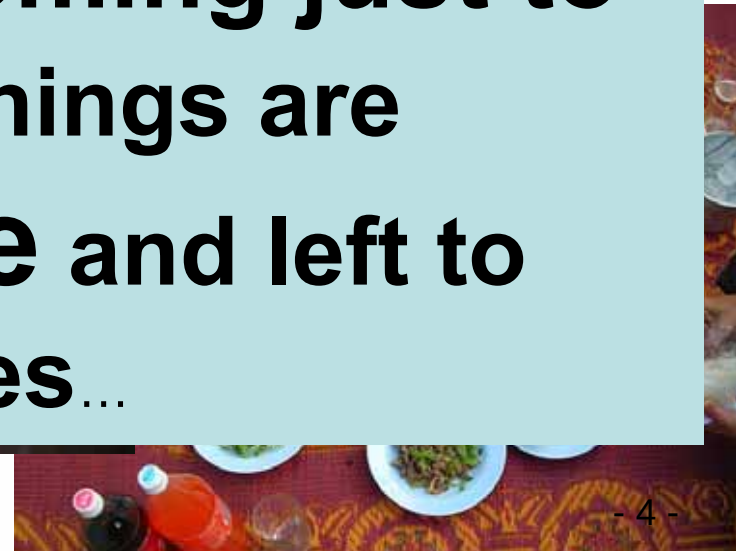
Restaurant Bill Effect

“Main dish, the most expensive items altogether, costs only small part of the restaurant bill”.



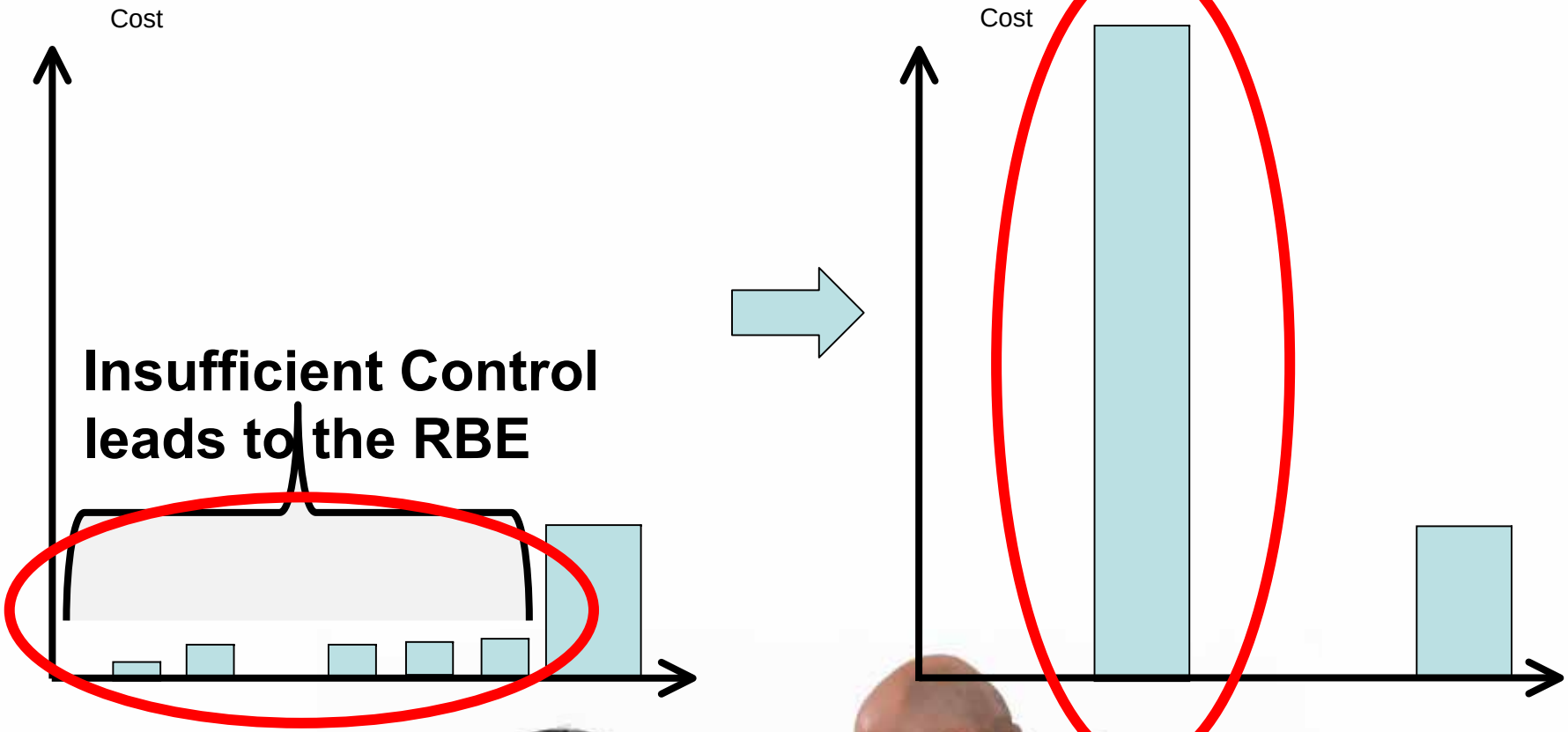


This happens when, as usual in a restaurant, we are coming just to have fun, and things are uncontrollable and left to themselves…

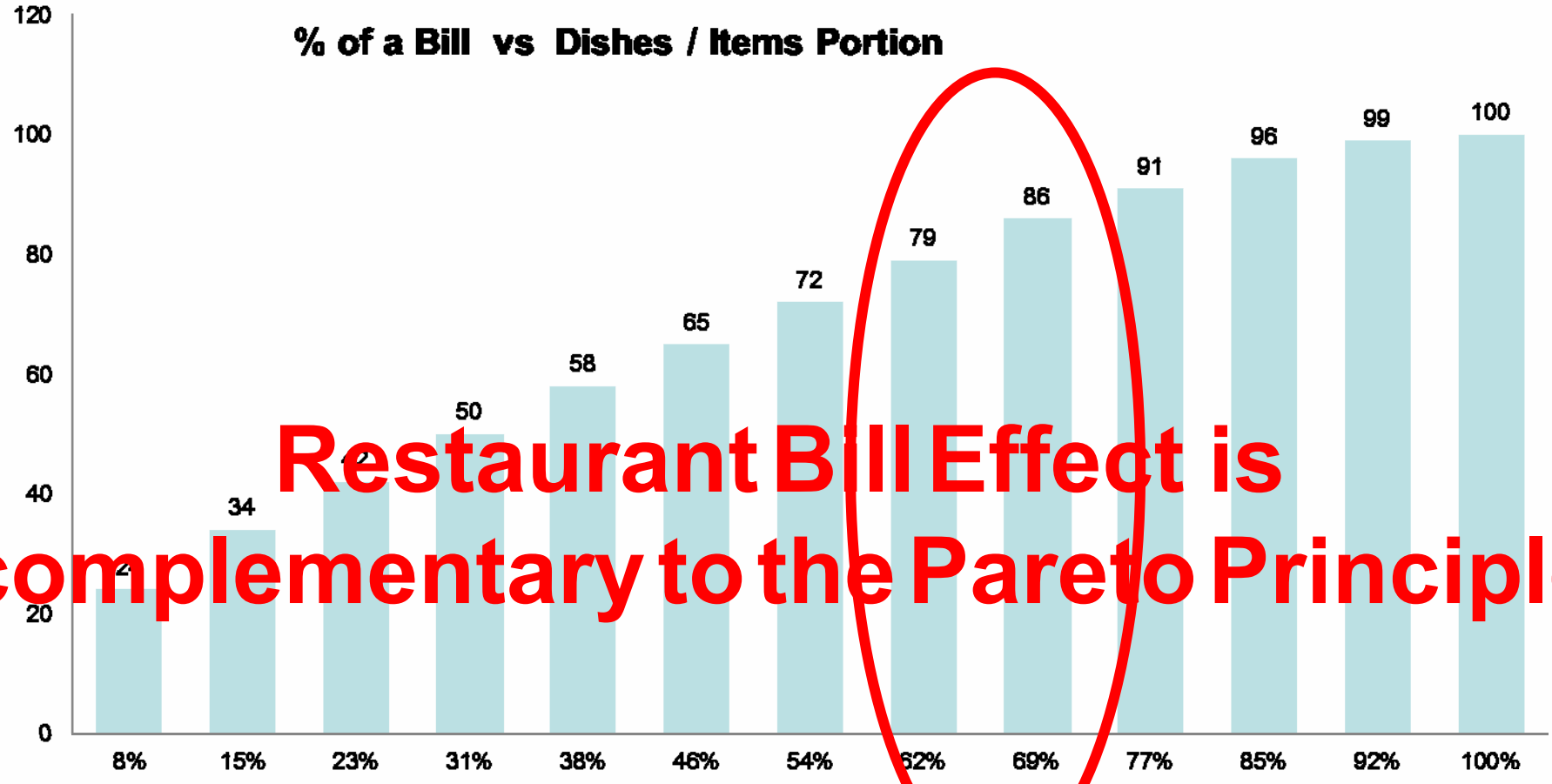


"Restaurant Bill Effect" means

The Power Of Miscellaneous



The Power of Miscellaneous



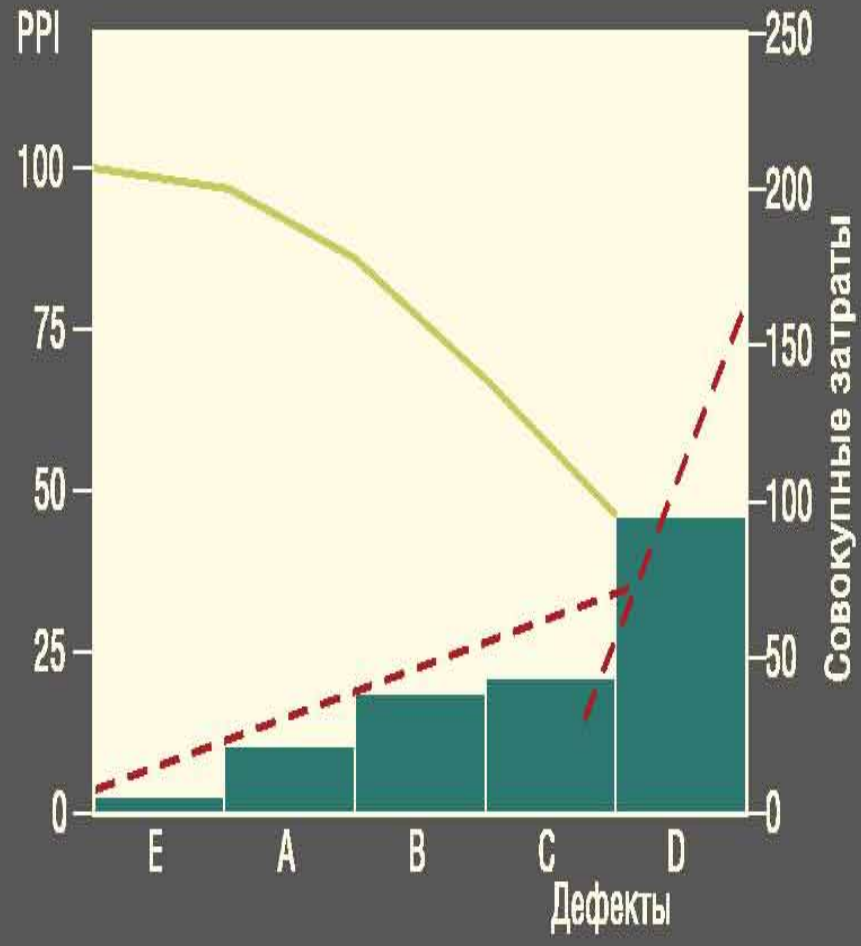
Restaurant Bill Effect is complementary to the Pareto Principle.

"Pareto" does not work:

there is no 20-80, at least 60-80!

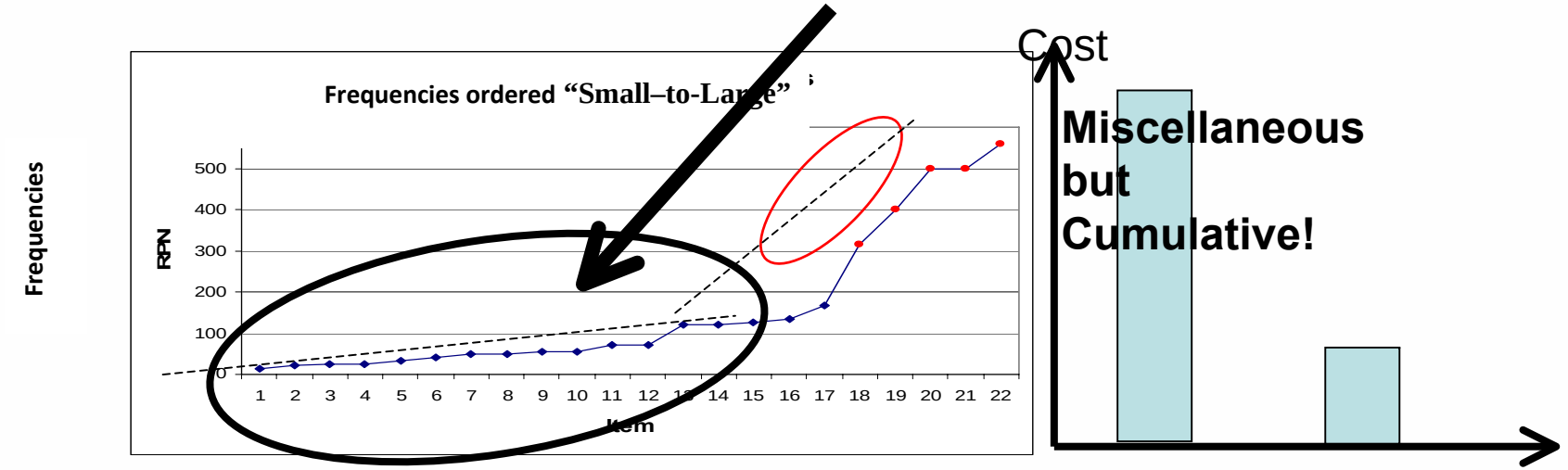
Scree plot

To analyze the Power of Misceltaneous we should use the “Scree Plot”

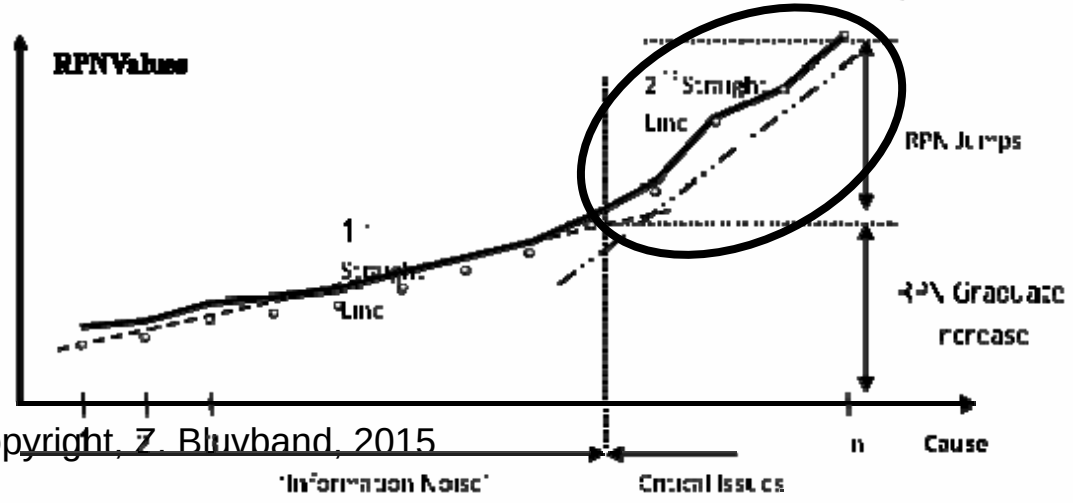


Pareto Principle and the "Restaurant Bill Effect"

The power of "miscellaneous"…



The difference between "Cost analysis" and "Risk analysis"



Pareto Principle and the “Restaurant Bill Effect”

The power of “miscellaneous”…

Appetizers, Starters, Salads, Soups, Bread, Beverages, Drinks, Pies, Cakes, Coffee, Tea, Ice-cream, etc., etc.- relatively small additions, each one not expensive at all, maybe 10% - 40% of the main dish (Pareto Principle, remember?),

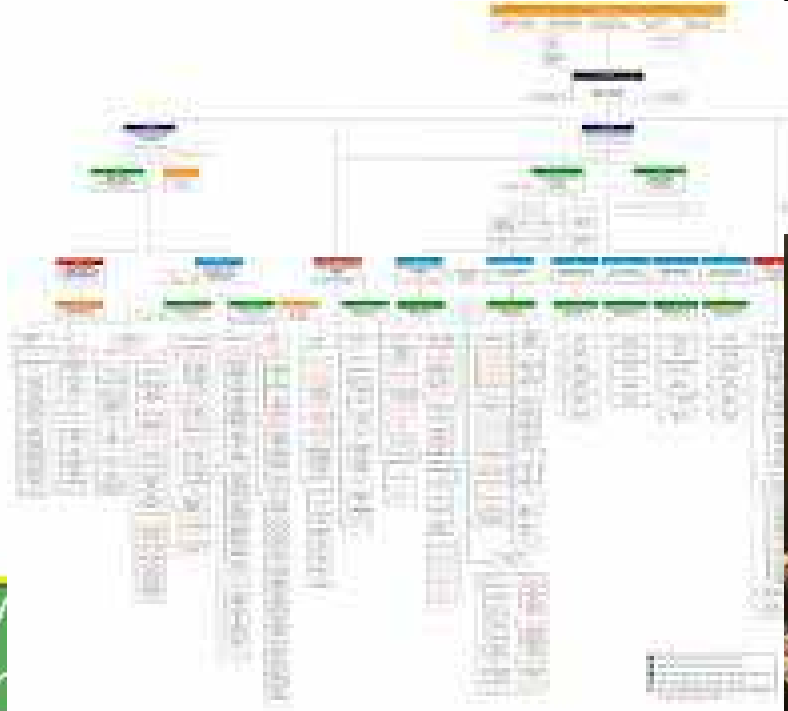
multiplied by

number of participants and quantities of refills, plus tips, taxes, “coperti” (cover charge), etc.

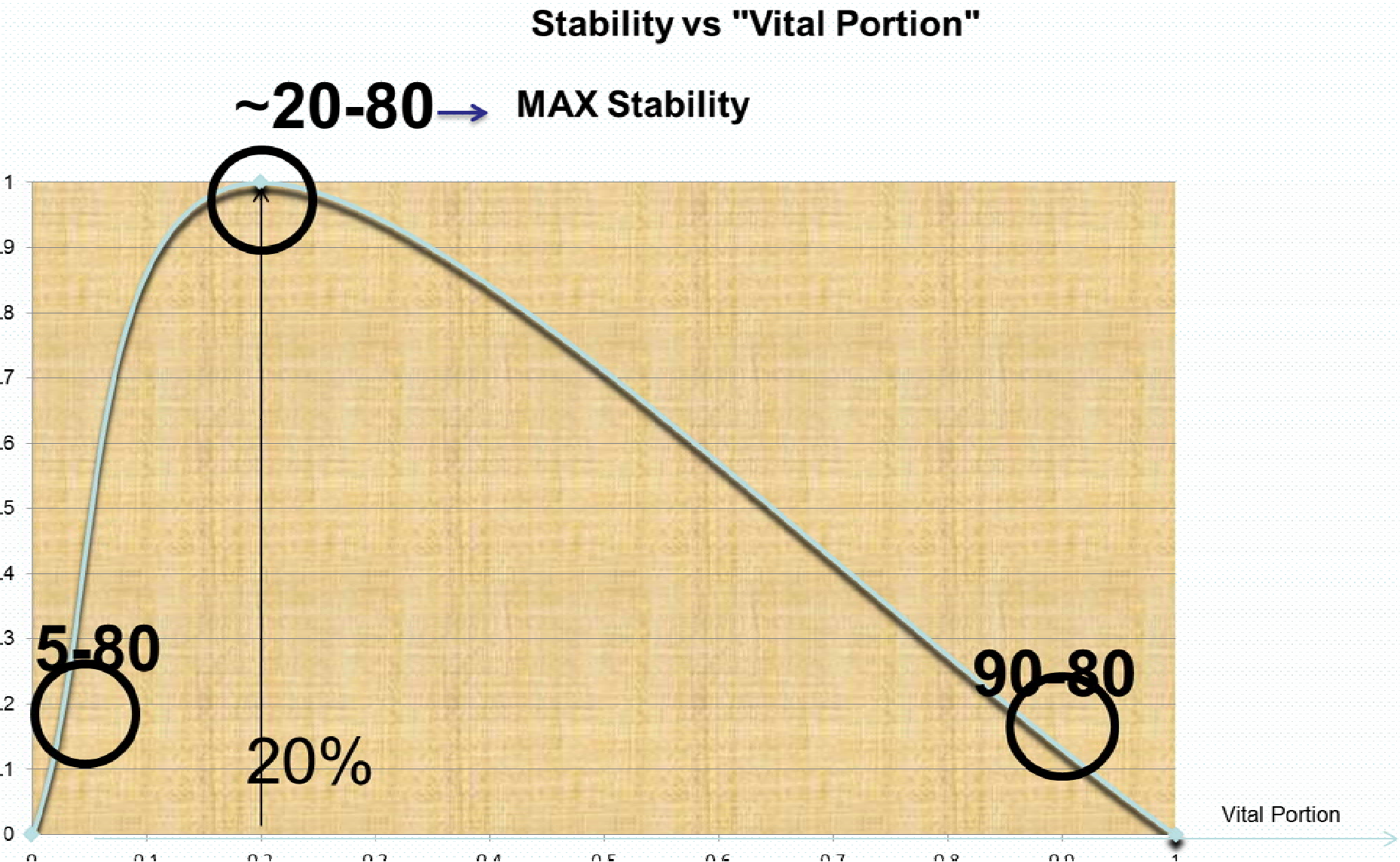
brings your bill to the three-four times (300%-400%) of the Main Dish cost.

So the PP can be also formulated as

“80% of the Effective Work can be accounted for by 20% of the people of an organization”.



Closer to PP ➔ Mature & Stable the organization is!

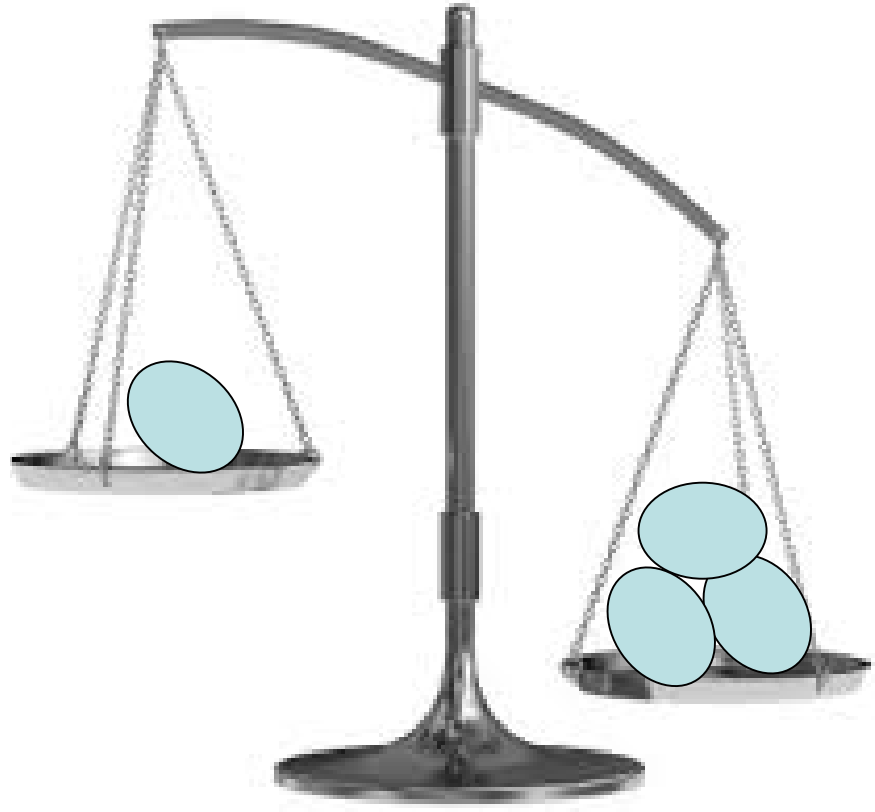


Which one is more Natural?

Org. with the Pareto principle

Organization is stable!

Org. where Pareto does not work



Organization is not stable!

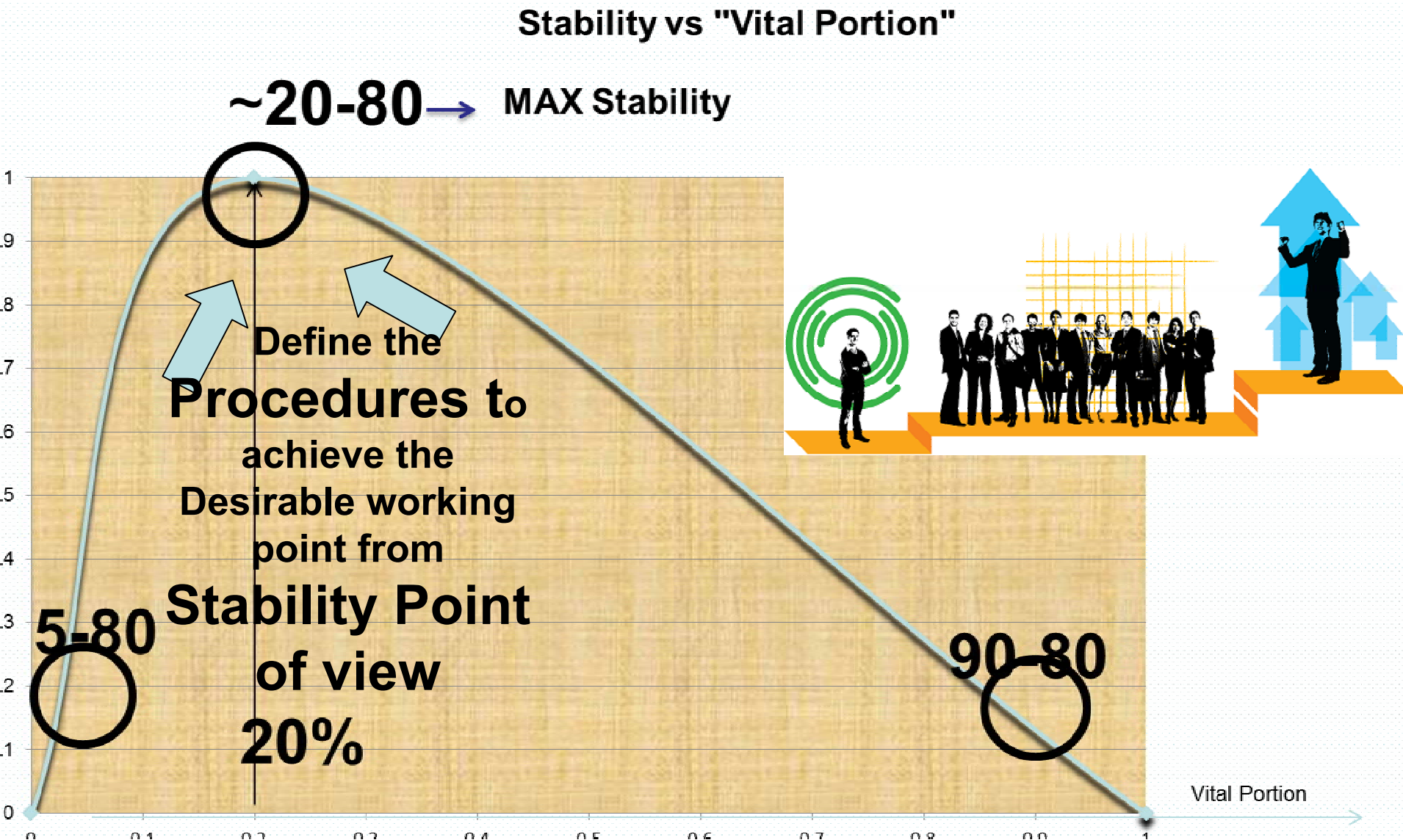
“**R**estaurant **B**ill **E**ffect” approach

2 basic claims of the RBE approach:

a) **The status of a system with the presence of the Pareto Principle is the “canonical status” the system owner has to strive to.**

b) **The “too powerful” miscellaneous should be converted into the “trivial many”**

Manager's task to get more Stable Organization



Manager’s task to bring Stability

Let’s define the statistical hypothesis test,
to decide, whether or not after applying the
certain procedures, the process became to be
“Pareto-Compliant”.

Pareto Principle (PP) can be formulated as follows

The principle of "X / Y",

wherein X is small (X << 100%),

and Y is close to 100% (Y ~ 100%).

Test of Hypotheses (Pareto Principle X/Y):

Ho: p=Y (Pareto Principle takes place),

H1: p<Y (reject Ho, i.e. Restaurant Bill Effect takes place).

where

Y is the **acceptable %** of the **Output of the process** (i.e. cost) **get** by

the **acceptable as the "Vital few" percentage X%** of the **efforts.**

Test of Hypotheses for PP

For the PP test, we recommend Ratio 30/75

(X=30%, Y=75%)

- the **recommended pair** of the above %%.

It means, that

for every trial number ”k” of the process,

we take the minimum relational quantity X% (30%)

of the most productive efforts

and sample the integrated amount Ck out of CTk

(total result of the trial “k”).

Test of Hypotheses for PP

Ho: p=0.75 (Pareto Principle takes place),

H1: p<0.75 (reject Ho, i.e. Restaurant Bill Effect takes place)

Step1. **For the purpose of the test, let's take sample size n: i.e. n trials of the process and state Level of Significance α (for example, α=0.05; n=30)**

Step2. **Calculate the sample proportion $\bar{p}$ of the Outputs of the n trials.**

$$\bar{p} = \frac{\sum_{k=1}^{n} Ck}{\sum_{k=1}^{n} CTk}$$

(for example, $\bar{p}$=0.63)

Step3. Calculate the "calculated" value of $\bar{z}$ (for Y=0.75 {75%})

$$\bar{z} = \frac{\bar{p} - 0.75}{\sqrt{\frac{0.75 * (1 - 0.75)}{n}}}$$

(In our example, $\bar{z}$ =-0.12/$\sqrt{\frac{0.1875}{30}}$ =-0.12/0.07906= - 1.518)

Test of Hypotheses for PP (cont.)

Step 4. Choose z* from the normal table to define rejection region (for α=0.05, z*= - 1.645)

Step 5. Use the Critical value method:

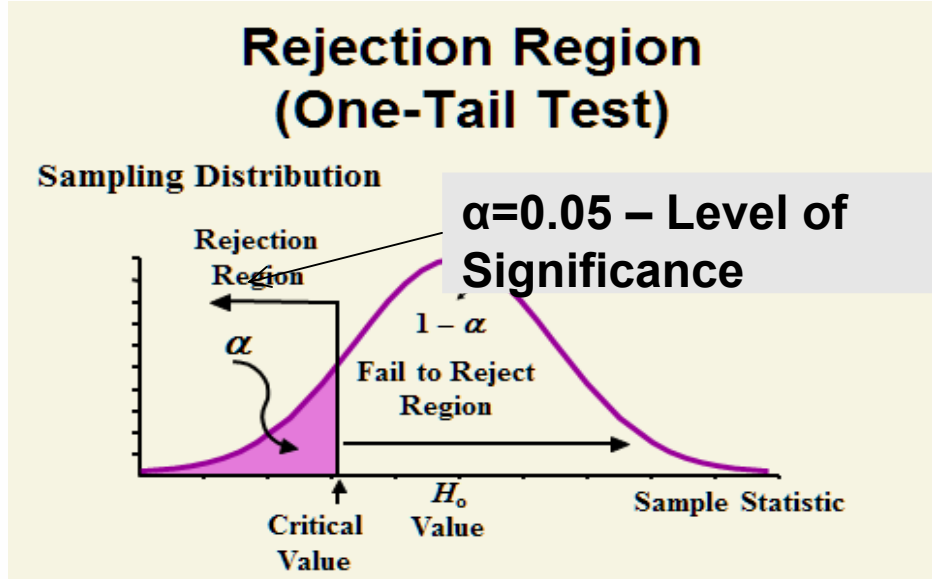
If $\bar{z}$ falls inside the acceptance region $\bar{z} > -1.645$– will not reject Ho (Pareto compliance!)

If $\bar{z}$ falls in rejection region $\bar{z} \leq -1.645$, then reject Ho (still the Restaurant Bill Effect takes place!).

In our example

$\bar{z}$=-1.518> z*= - 1.645,

so **Pareto Compliance Accepted!**



Manager's task is to bring Stability

So to eliminate the RBE.
But, What about Sustainability?

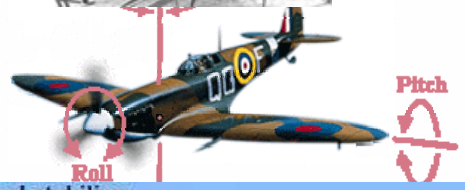
Sustainability is ability to survive…

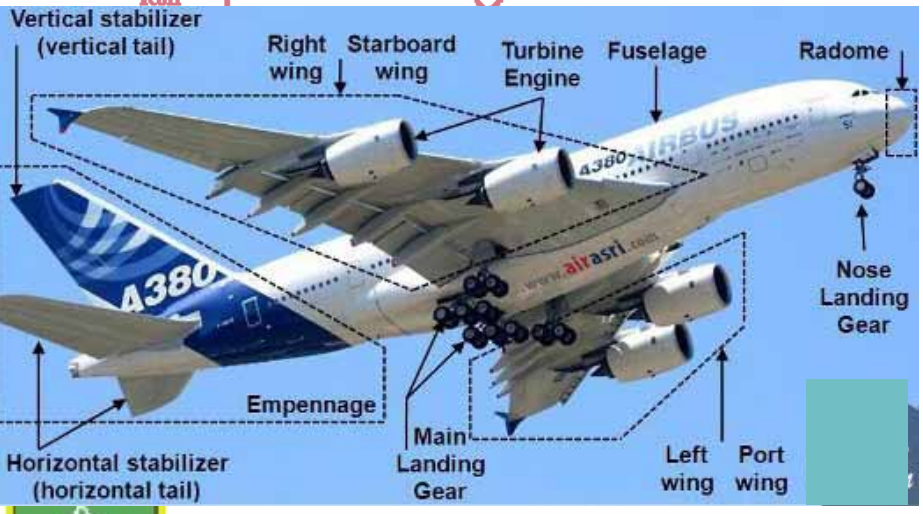
Stability can be a feature of a Sustainable system but it may not be necessity.

Stability vs Sustainability (history)

Aircraft Design historical example

1st years: ASAP –
As Stable as Possible!!!
For Super-Robustness…





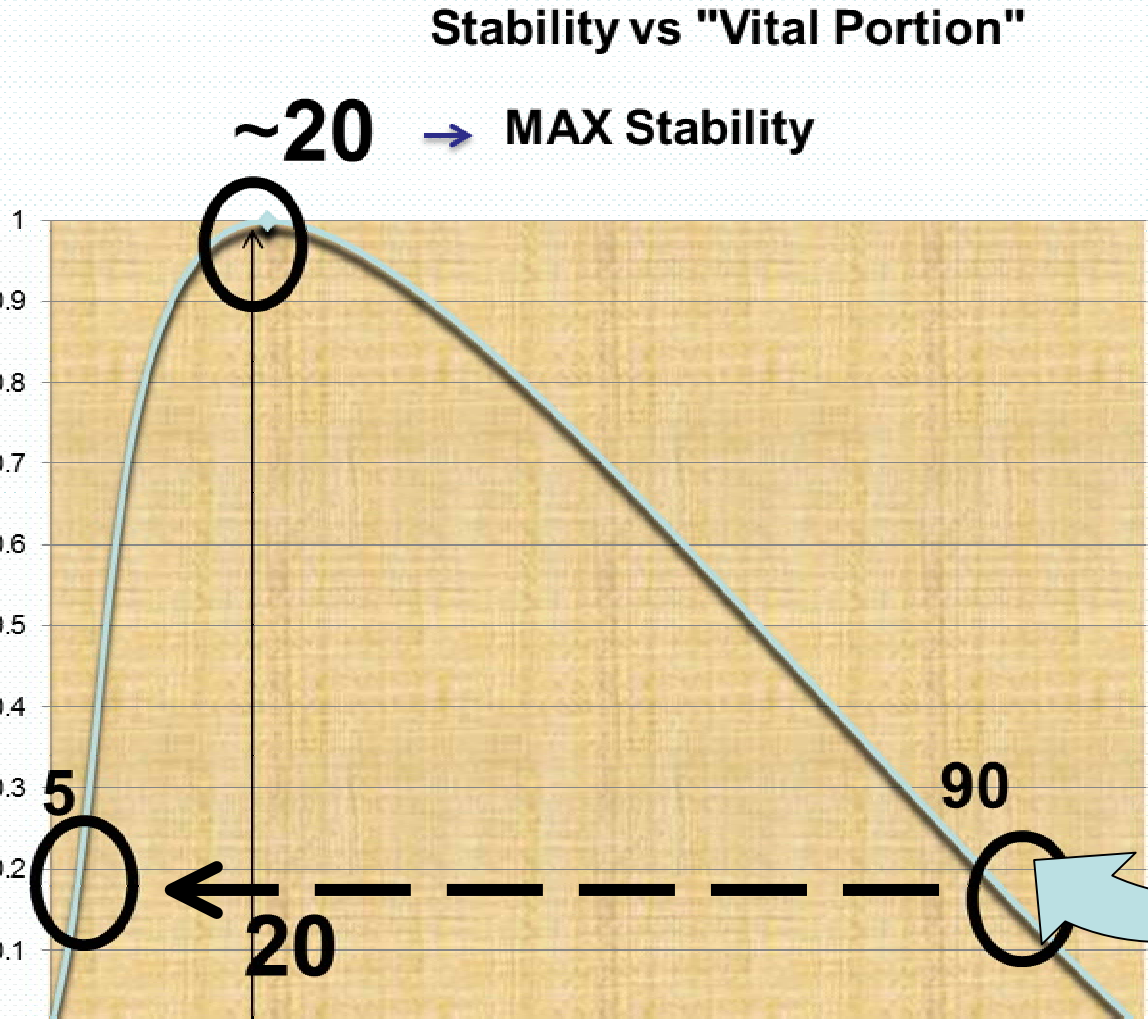
Later years (Military)
AUnSAP –
As UnStable as Possible!!!
For Super-Maneuverability…

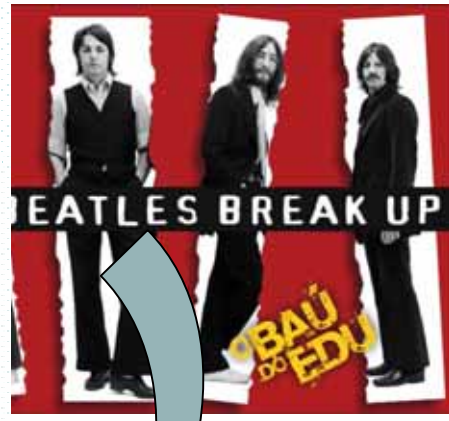
The Beatles organization example

The greater Vital Portion VP>>20%, the lower Stability is – people are more independent and therefore finally tend to separate himself / herself.

The Beatles organization example

Beatles Vital Portion VP >90%, -> very low Stability very independent and therefore finally break up…





About **R**estaurant **B**ill **E**ffect, **P**areto **P**rinciple, **S**tability, **S**ustainability, **L**eadership and **S**uccess-

let's speak in the Next Paper…