



**CONSULTING**  
MANAGEMENT & TECHNOLOGY

Some measurement  
models that have been  
useful to us.

Richard Ponsonby

16 April 2008



# Agenda

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- Definitions
- The old tool box
- Living with complexity
- Living with graphs and measures
- Some other considerations





# Definition of Quality

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**Quality** (plural qualities)

**1. (uncountable) Level of excellence**

This school is well-known for having teachers of high quality.

Quality of life is usually determined by health, education, and income.

**2. (countable) A property or attribute that differentiates a thing or person.**

One of the qualities of pure iron is that it does not rust easily.

While being impulsive can be great for artists, it is not a desirable quality for engineers.

Security, stability, and efficiency are good qualities of an operating system.

**3. (thermodynamics)** In a two-phase liquid-vapor mixture, the ratio of the mass of vapor present to the total mass of the mixture.

**4. (archaic) High social position.**

A peasant is not allowed to fall in love with a lady of quality.

Membership of this golf club is limited to those of quality and wealth.

**5. The correspondence between a goal and its outcome -- between intent and result of action.**





# Definition of Measurement

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## **Measure** (plural measures)

The quantity, size, weight, distance or capacity of a substance compared to a designated standard.

1. An (unspecified) quantity or capacity : a measure of salt
2. The precise designated distance between two objects or points.
3. The act of measuring.
4. A musical designation consisting of all notes and or rests delineated by two vertical bars; an equal and regular division of the whole of a composition.
5. A rule, ruler or measuring stick.
6. A tactic, strategy or piece of legislation.
7. He took drastic measures to halt inflation.
8. (mathematics) A function that assigns a non-negative number to a given set following the mathematical nature that is common among length, volume, probability and the like.
9. An indicator; Something used to assess some property.
10. The average price of basic household goods is a measure for inflation.
11. Honesty is the true measure of a man.





*“... as much as 95% of all quality related problems in the factory can be solved with seven fundamental quantitative tools”*

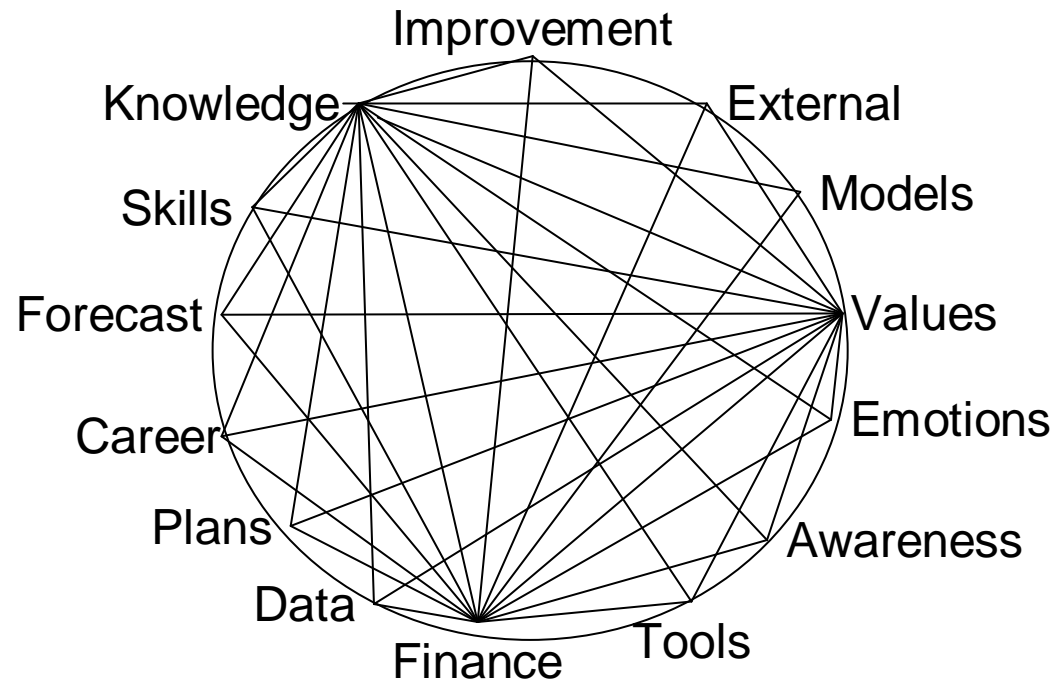
Kaoru Ishikawa

- Flowcharts
- Histograms
- Pareto Analysis
- Cause and Effect Diagrams
- Check Sheets
- Control Charts
- Scatter Diagrams



# “No measurement is an island complete of itself...”

*With apologies to John Donne 1512-1631*



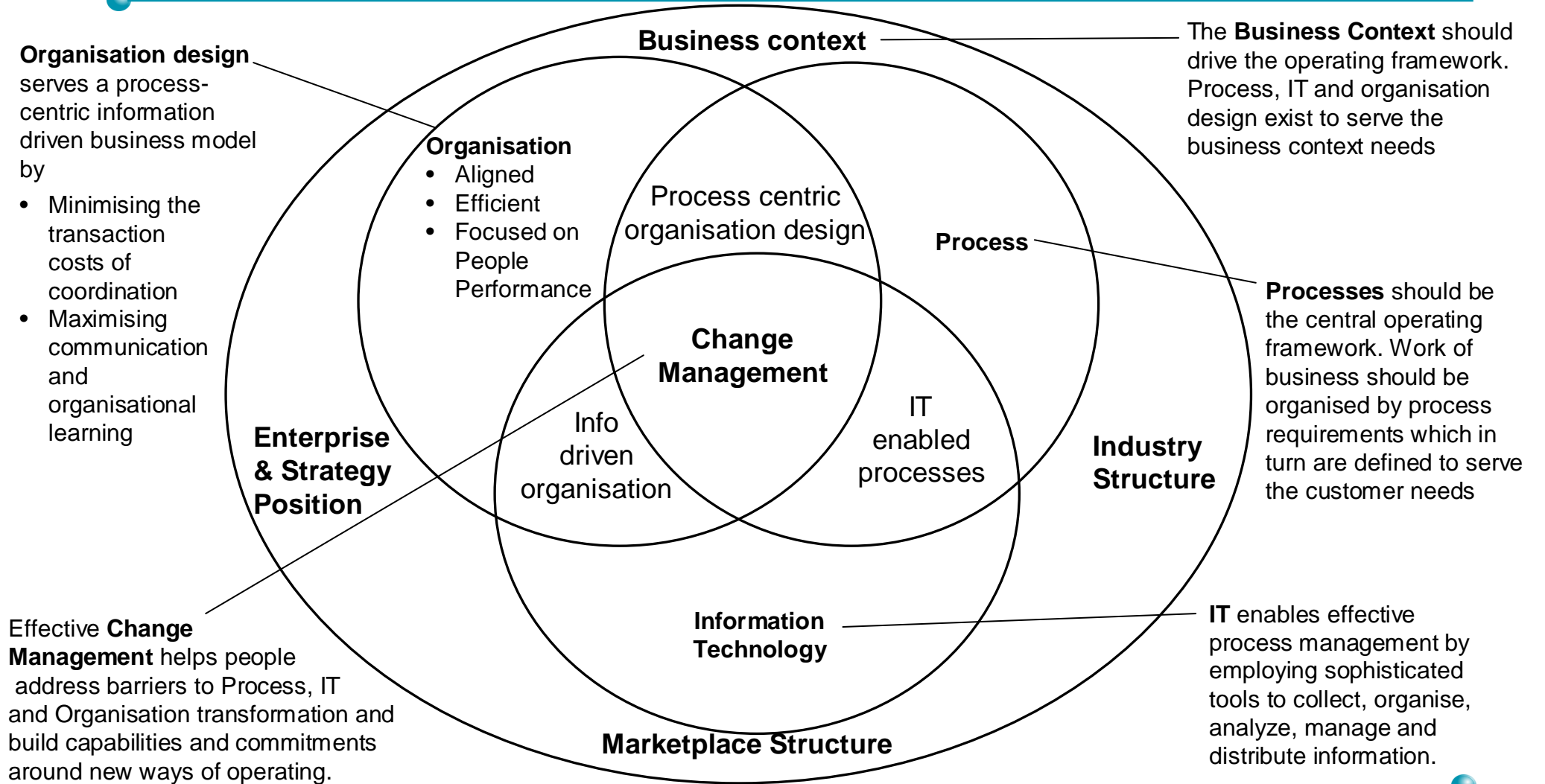
We live in a web of inter-relationships. Models help us make sense of the chaos around us.

How do we know we can really trust something?

We have to trust what we really know about something.



# Models help us to make sense of the chaos around us. This looks complex but we can focus in to understand different perspectives





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# Making the measurable important

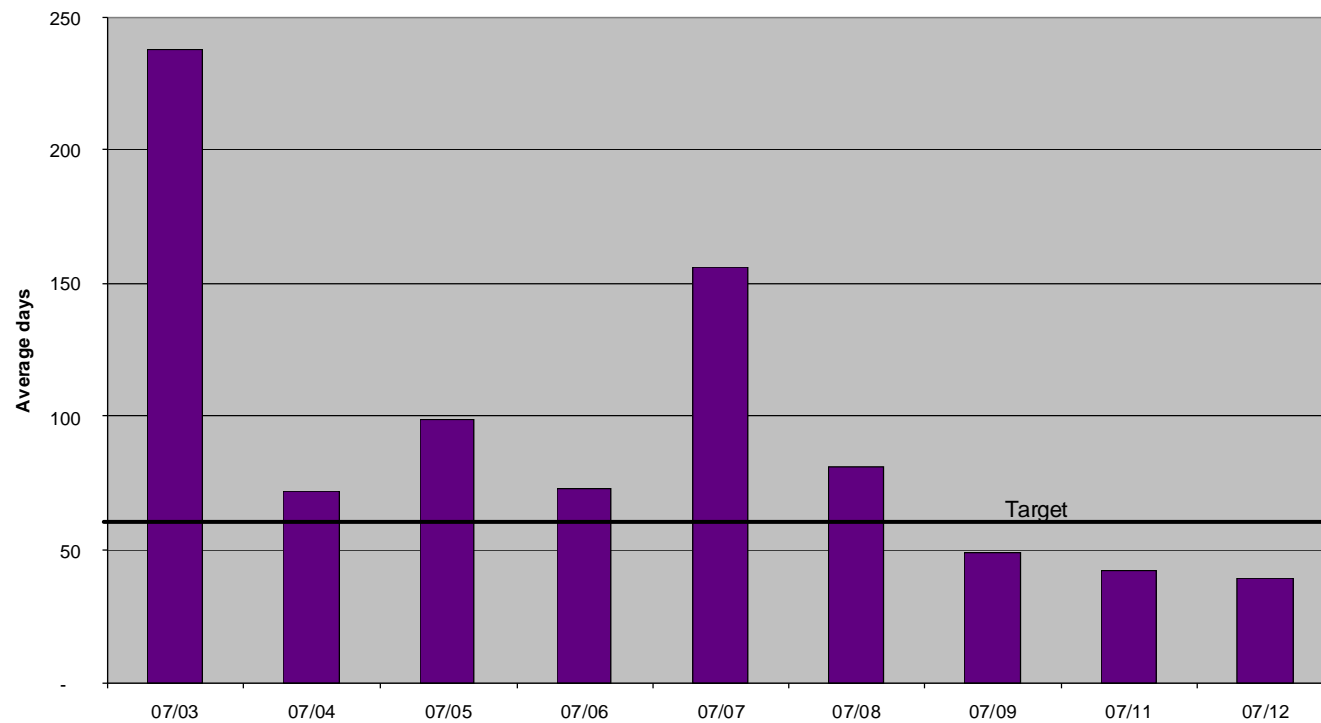






# Charts tell the truth!

Average days through process



Process involves delivering resources within a target of 61 days. The responsible department is failing 66% of the time.

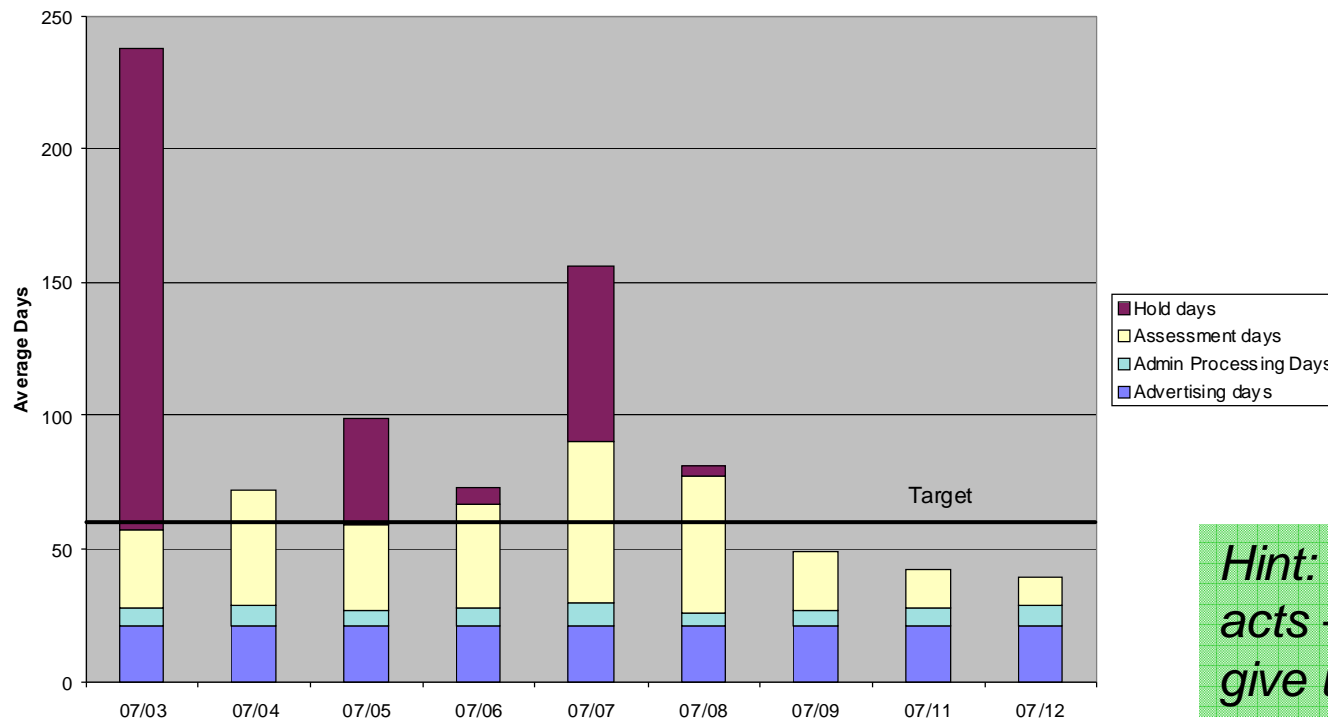




# Looking deeper and measuring appropriately we see a different picture.



Average days through Process



- The process passes through other departments.
- The process owner cannot control these departments
- Measuring through each part of the process indicates where to improve

*Hint: Don't go in for unnatural acts – organise your records to give up vital information naturally*





“The art of prophecy is very difficult especially with respect to the future.”

Mark Twain

Most forecasts are single line views

They tend not to include a quality measure

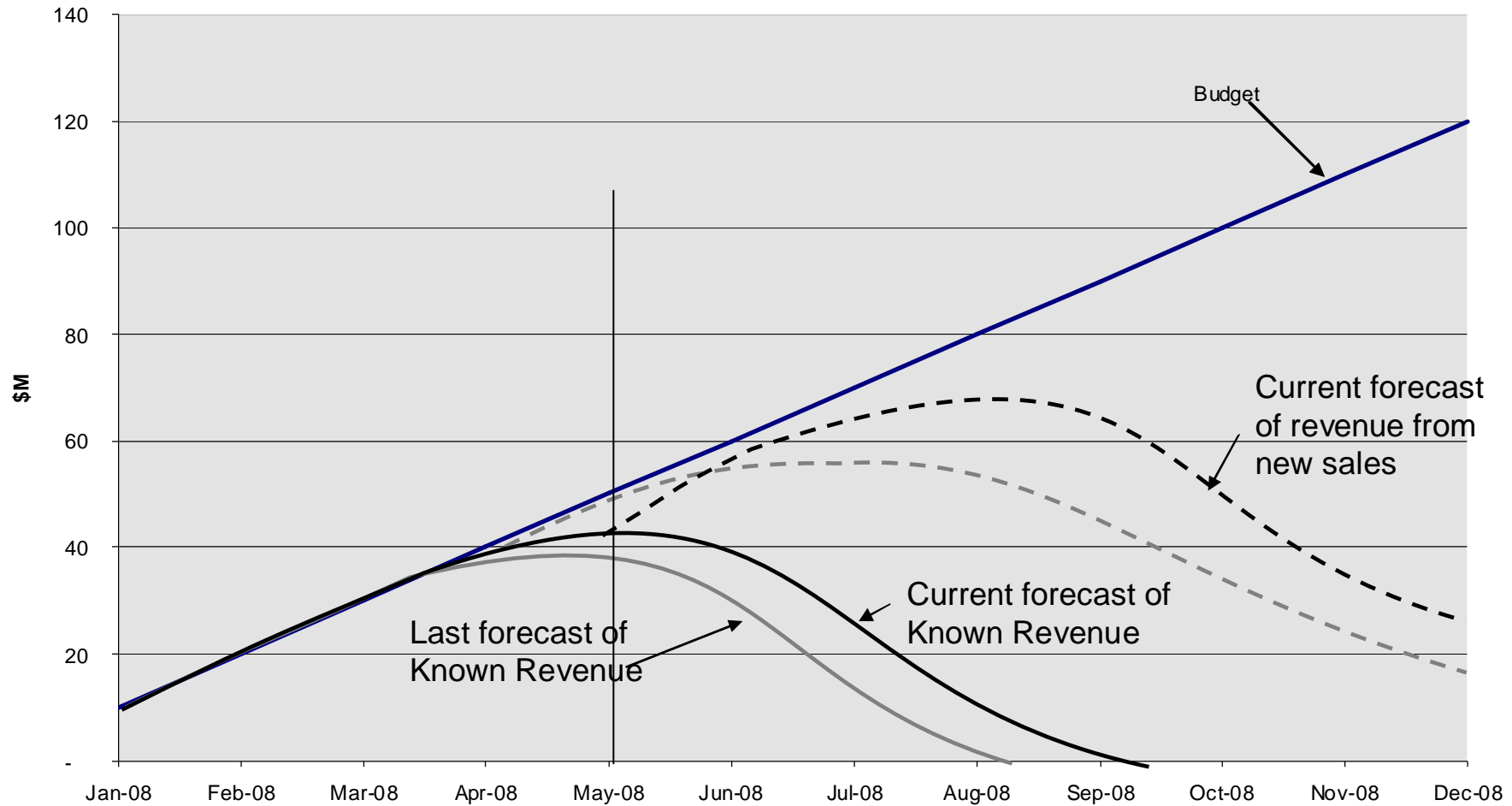




# Would you trust this forecast?

(Not really. The sales forecast is wildly optimistic and not being delivered)

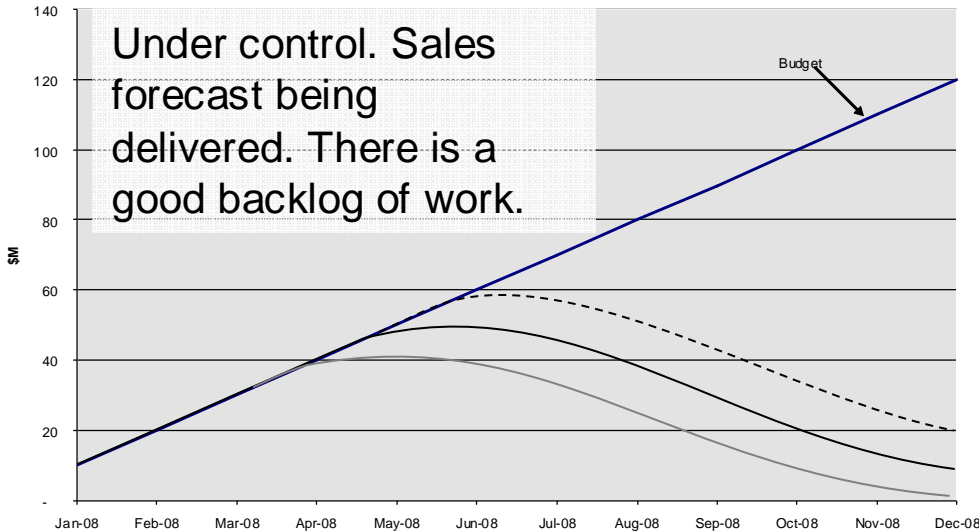
Financial Results for May 2008





# The change of shape provides a good indicator of a change of fortunes

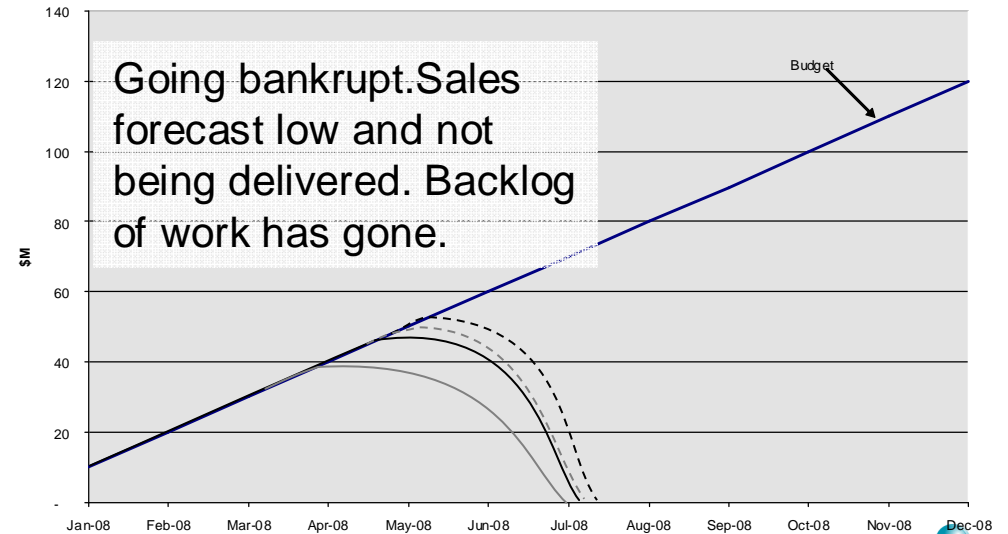
Financial Results for May 2008



From this

To this

Financial Results for 2008





# Affinity Diagram

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This is known as

- Affinity Diagram
- Stakeholder analysis
- Cluster map
- KJ Method after Mr Jiro Kawakita

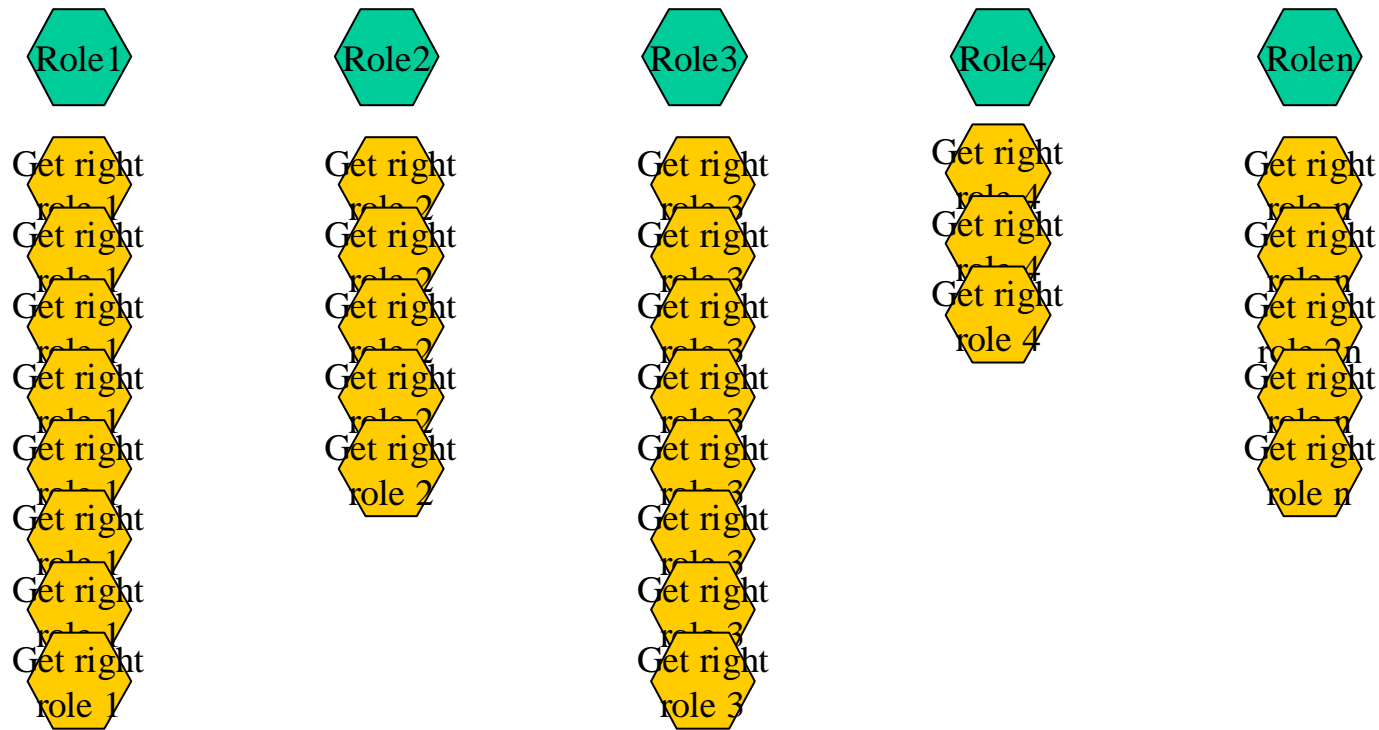
Use

- Helps structure intangible problems
- Allows for facts, emotions, behaviours
- Can offer insights into team thinking





Identify key stakeholders and write down what is important to them. Use one slip per idea and express as a noun verb construct i.e. collect accurate data.



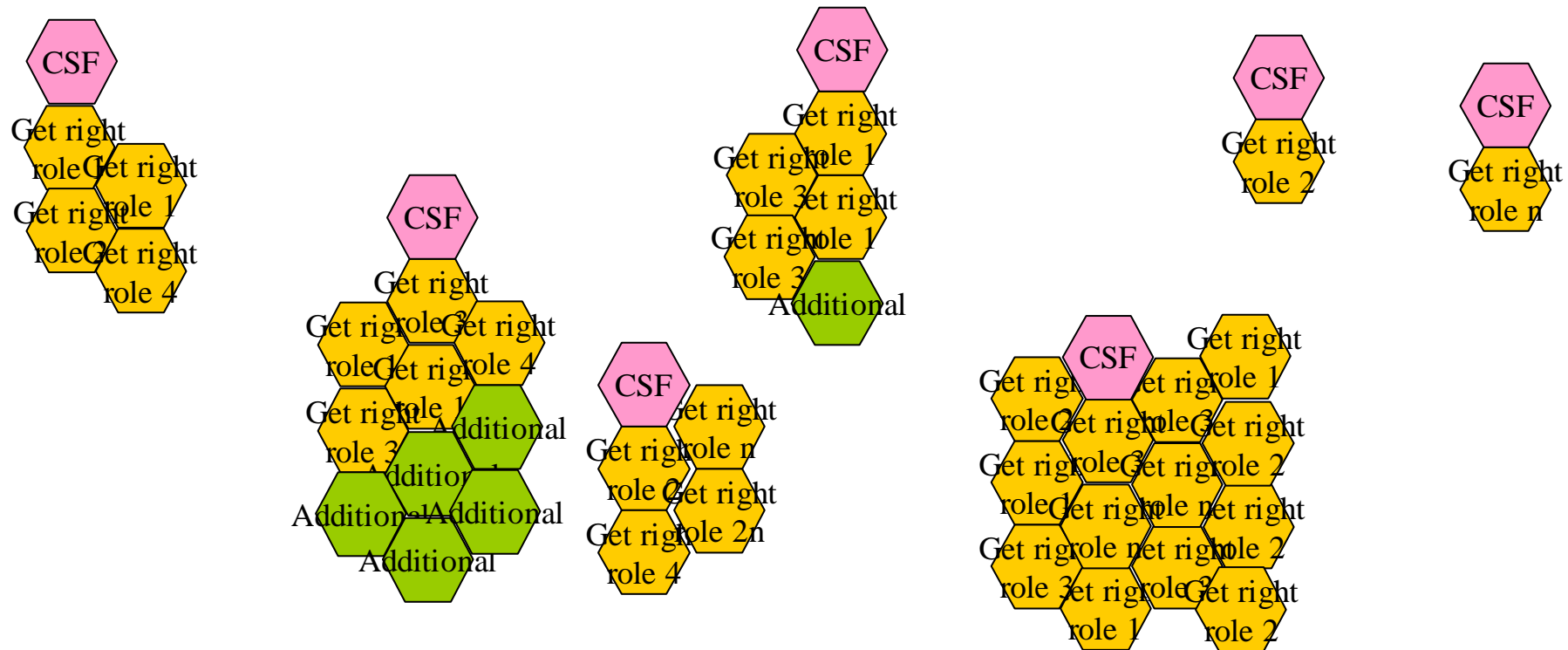
Uses a clear wall, slips of paper, thick pens and blutac





Once the group has collected enough data then remove the Role slips and get them to cluster the things that are important into themes which they consider to be similar. The group can add other items as they review the clusters. Finally at this stage name the clusters with the CSF. The clustered slips provide the definition of the CSF.

The clusters indicate focus and affinity.

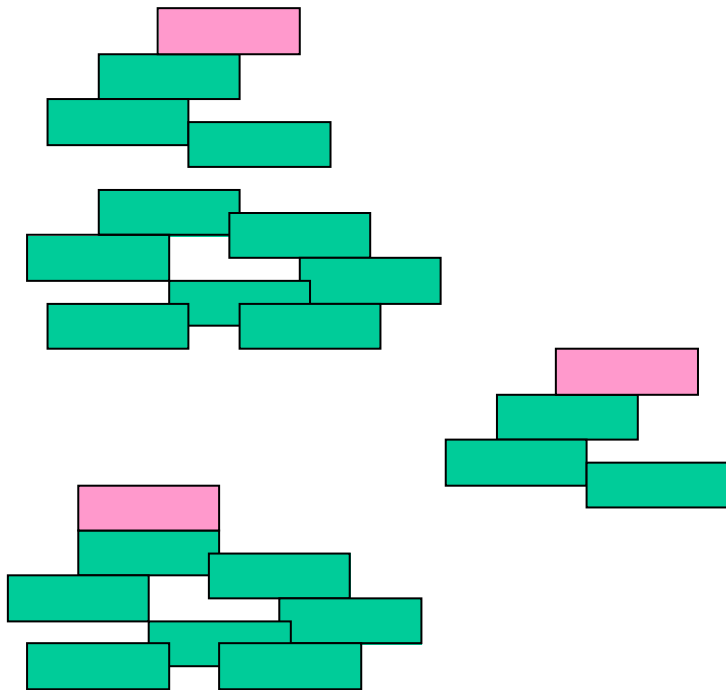




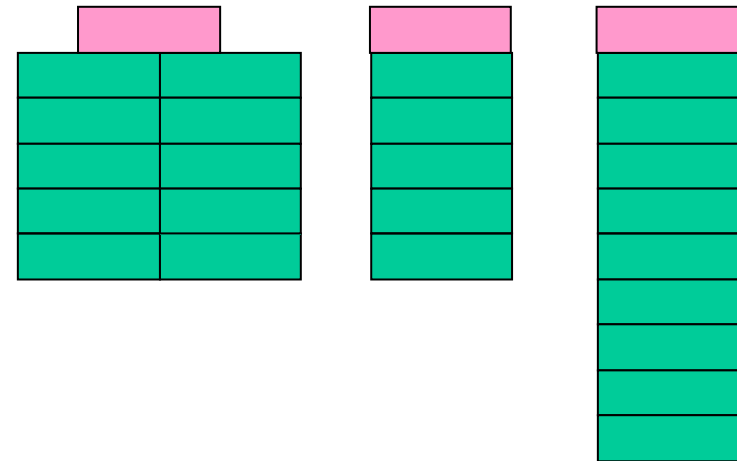


# What do you deduce from the differences between these clustering patterns?

Team A



Team B



A fundamental difference in values  
Near enough is good enough  
vs  
Precision and completeness



Another angle on Pareto.





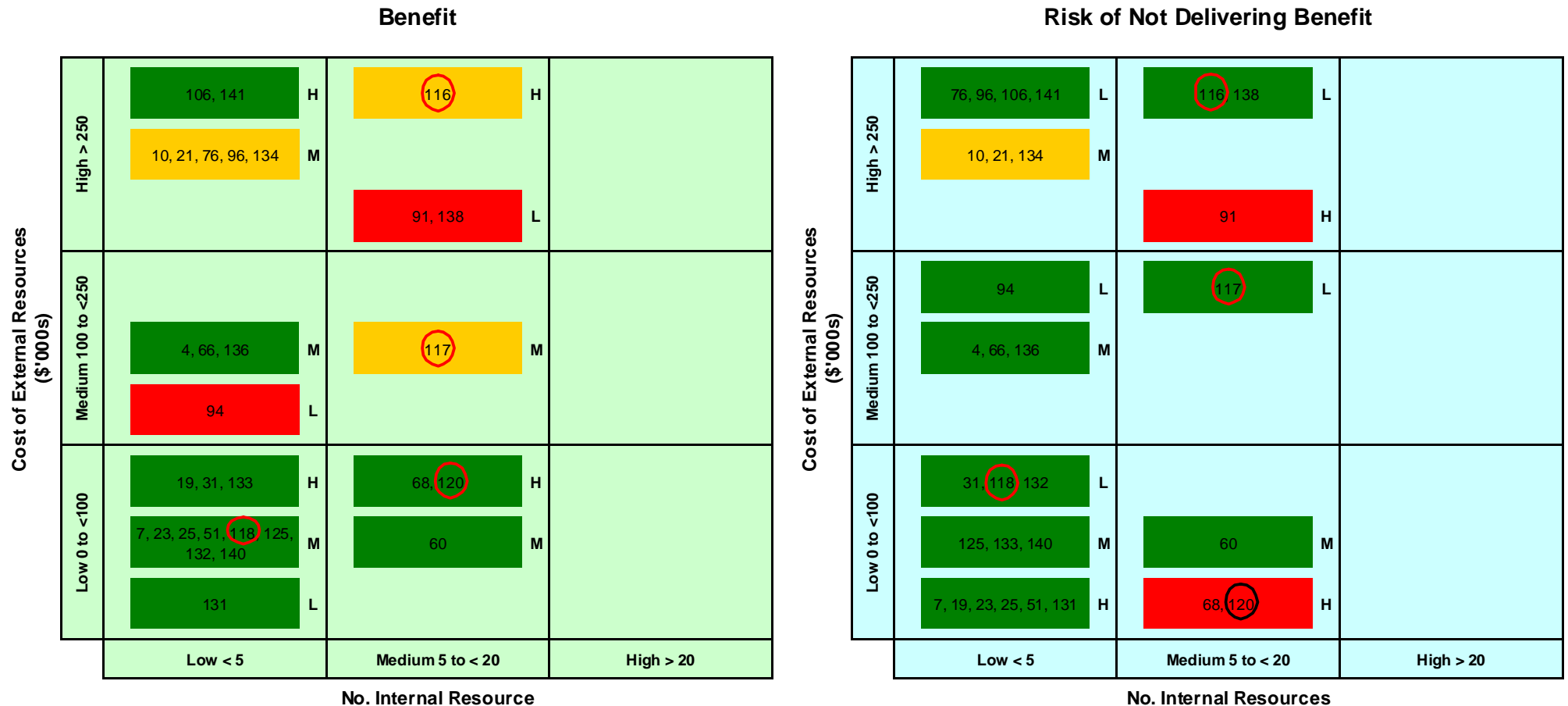
# Which of these projects is best to do?

Number	Internal Resource Cost	Internal Resource #	External Cost	Benefit	Benefit Risk
Project No 4	563	4.0	100	Medium	Medium
Project No 7	234	2.0	90	Medium	High
Project No 10	235	1.0	1,055	Medium	Medium
Project No 13	-	-	-	Low	High
Project No 19	124	1.0	40	High	High
Project No 21	270	3.0	252	Medium	Medium
Project No 23	126	1.0	10	Medium	High
Project No 25	32	1.0	5	Medium	High
Project No 31	70	1.0	-	High	Low
Project No 51	394	4.0	-	Medium	High
Project No 55	-	-	80	Medium	High
Project No 60	563	5.0	-	Medium	Medium
Project No 66	15	1.0	235	Medium	Medium
Project No 68	1,500	15.0	-	High	High
Project No 76	200	3.0	1,800	Medium	Low
Project No 79	-	-	-	Low	High
Project No 91	600	6.0	850	Medium	High
Project No 94	30	1.0	115	Low	Low
Project No 96	707	2.0	1,590	Medium	Low
Project No 106	90	1.0	255	High	Low
Project No 116	245	7.0	410	High	Medium
Project No 117	104	5.0	222	Medium	Low
Project No 118	160	1.0	-	Medium	Low
Project No 119	-	-	-	Low	High
Project No 120	1,000	15.0	-	High	High
Project No 121	-	-	-	Low	High
Project No 125	56	1.0	-	Medium	Medium
Project No 130	-	-	-	Low	High
Project No 131	100	2.0	-	Low	High
Project No 132	200	2.0	-	Medium	Low
Project No 133	304	3.0	-	High	Medium
Project No 134	90	1.0	563	Medium	Medium
Project No 136	100	2.0	225	Medium	Medium
Project No 137	-	-	-	Low	High
Project No 138	1,000	11.0	1,500	Medium	Medium
Project No 140	158	2.0	-	Medium	Medium
Project No 141	160	2.0	300	High	Low

- Limiting factor is internal resources
- Need to balance risk and benefits against best use of internal resources



# A way to look at more than three dimensions for a limiting resource.



Do  
 Consider  
 Do not do  
 H High Benefits  
 M Medium Benefits  
 L Low or Unknown Benefits

Do  
 Consider  
 Do not do  
 H High Risk  
 M Medium Risk  
 L Low Risk



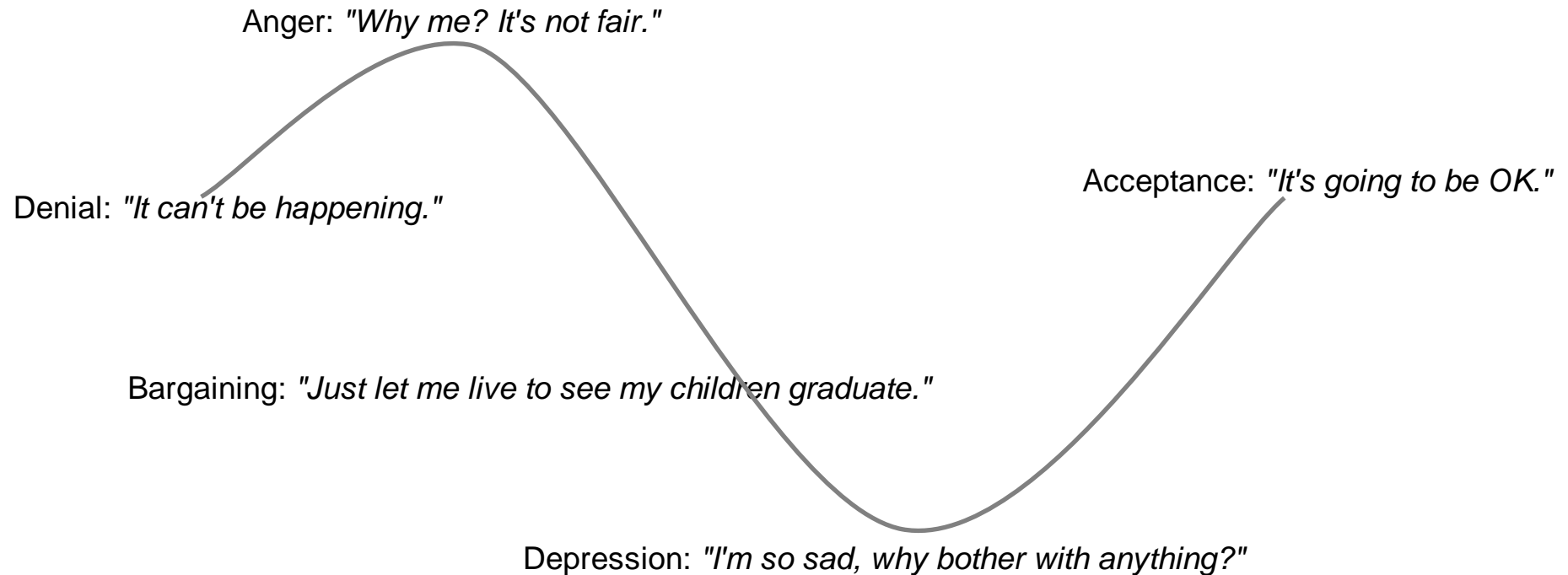
## Some observations on matching





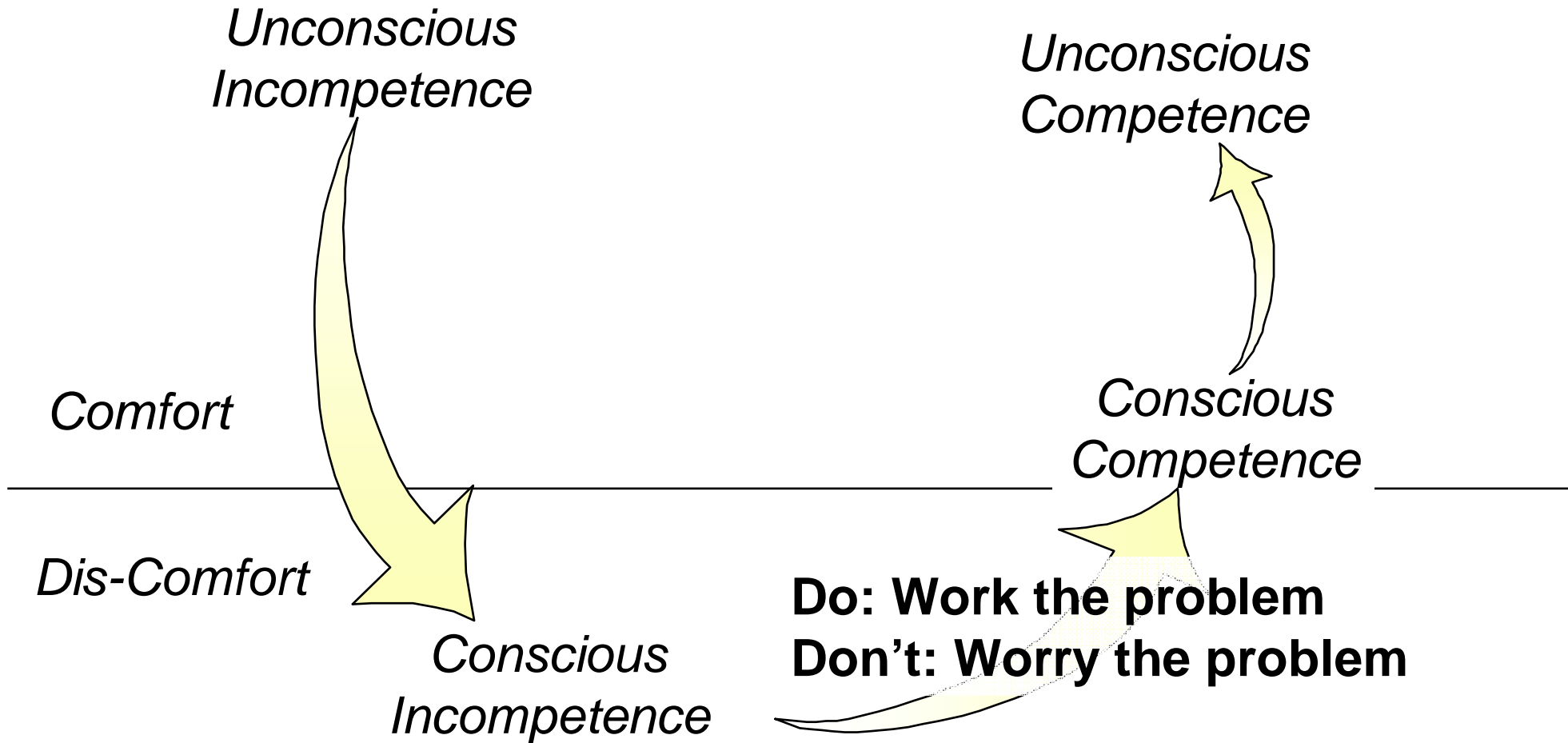
Elizabeth Kübler-Ross identified five stages of grieving in 1973. These stages are largely applicable to other sorts of loss. By understanding the stages we can match our behaviour to the emotions.

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# Learning Model – “you learn best when you are getting the #\$\$% kicked out of you!”





You need to match the tool and the message to the maturity of your organisation otherwise they will miss!

