

- **Problem:** is the difference between desired state and current state
- **Characterising problems:** by using different ways to describe problems it highlights different ways in which we might approach dealing with them. We can classify them under two categories: *complexity (Ackoff's classification) and structure*

Definition: basically the what we are trying to achieve

- **Complexity of a problem:** is one of the categories which you can describe. This is called Arkoffs classification.
 - **Puzzles:**
 - Simple problem
 - Well defined
 - Single solution
 - Well understood methods
 - Problem:
 - Well defined
 - Different possible solutions
 - More complex
 - Solutions depend on something
 - Messes
 - Interrelated problems (impossible to break down)
 - No agreed definition (stakeholders)
 - Social/political nature
 - Problems/solution may be defined but method to reach solution is arguable
 - Impossible to one-part need to address whole mess
 - Fixing on part may make other parts worse
 - Wicked problem
 - Complex social mess
 - No definite solution
 - No set of potential solution
 - Solution not right or wrong
- **Structure of a problem:**
 - **Structured problems:**
 - Routine
 - Solved with known methods
 - EG: Sudoku
 - **Semi structured problems:**
 - Part of problem is structured
 - Structured part may be solved in familiar way
 - Eg: Choosing which car to buy- want car to have aircon/roof
 - **Unstructured problems:**
 - No ready method of solution
 - May need to be structured somehow for solving or management
 - Eg: should we build a dam. – desire outcome? Here or somewhere else. Break questions

- **General problem solving/decision making:** can be used by simon model
 - **Intelligence:**
 - Collect information
 - Identify/define problem
 - **Design:**
 - Alternative
 - Select criteria or what need to be fulfilled
 - **Choice:**
 - Evaluate alternatives
 - Select alternatives
 - **Implementation:**
 - Put decision into effect
 - Allocate resources
 - Control
- **Problem identification:** by identifying the problem we can fix it.
 - Identify problem
 - Problem formulation (describing and representing)
 - Problem ownership (who's problem is it)
 - Can it be structured/find/organise and more straightforward to solve
- We can identify problems through two methods:
 - **5-whys:** keep asking why until fundamental problem is revealed. The photocopier keeps smudging why?
 - **Cause and effect:** different causes and effects contribute to the stated problem
- **Problem ownership:** identify the responsibility of problem. Point: shapes the nature of solution
 - Who owns problems
 - Solutions to one problem can lead to more problems.