Soft Systems Analysis (Methodology)

JOHN BESSANT
Managing Innovation

Soft Systems Analysis (Methodology)

This is an approach to working with complex problems which have multiple interacting elements – social, technological, political, etc. It is a branch of systems thinking associated in particular with the work of Peter Checkland. His original book 'Systems Thinking, Systems Practice' (John Wiley, 1998) captures the basic elements of the methodology although it has been developed and updated by many other researchers and practitioners.

Unlike 'hard systems' such as the technological components in a motor car which fit together into sub-systems like the 'fuel system' or the 'braking system' and which converge to create the motor car system, soft systems do not have clear of consistent definitions. Hey depend on the perspectives of the actors involved. So dealing with a problem like 'how to make health acre better' is not simply a design challenge in physical components but a challenge in understanding and then working with a complex social, political and technical system.

The basis of the methodology is to try and make the problem system visible from the perspective of different actors involved – and then to stimulate discussion and development of solutions which take those different perspectives into account.

Soft systems analysis is based on a seven step methodology:

1. Entering the problem situation.
2. Expressing the problem situation.
3. Formulating root definitions of relevant systems.
4. Building Conceptual Models of Human Activity Systems.
5. Comparing the models with the real world.
6. Defining changes that are desirable and feasible.
7. Taking action to improve the real world situation.

Step 1 involves identifying the system under study – the problem situation – and putting some boundaries around it.

Step 2 involves building representations of the problem situation form different standpoints. A powerful tool in this stage is the use of rich pictures – visual representations using images, cartoons, symbols, etc. to capture the complexity and interrelationships.

Step 3 tries to look at possible systems models of relevance to the problem situation. For example, a café could be described as a system for feeding people – and that root definition would lead to a certain kind of design. But a different root definition – a café is somewhere for people to meet and form relationships – might lead to a very different kind of design. Root definitions are powerful ways of building systems models which can help get to the heart of the problem issue. A powerful mnemonic – CATWOE – helps create root definitions which need to take account of and spell out:

- **Clients** – Who are the beneficiaries or victims of this particular system? (Who would benefit or suffer from its operations?)
- **Actors** – Who are responsible for implementing this system? (Who would carry out the activities which make this system work?)
- **Transformation** – What transformation does this system bring about? (What are the inputs and what transformation do they go through to become the outputs?)
- **Worldview** – What particular worldview justifies the existence of this system? (What point of view makes this system meaningful?)
- **Owner** – Who has the authority to abolish this system or change its measures of performance?
- **Environmental constraints** – Which external constraints does this system take as a given?

Step n4 involves building systems descriptions base don those root definitions. If our café is to be a place for helping people meet ten what would such a system look like and how could we optimize it?

Step 5 looks at the real situation and the model built in step 4 and compares the two. If our goal is to improve people's interaction then the current real world café system may not be well designed to do this – and we might identify areas which we could focus on to change.

Step 6 is identifying and specifying those changes and step 7 involves implementing them.