

Studying Organisations Using Soft Systems Methodology

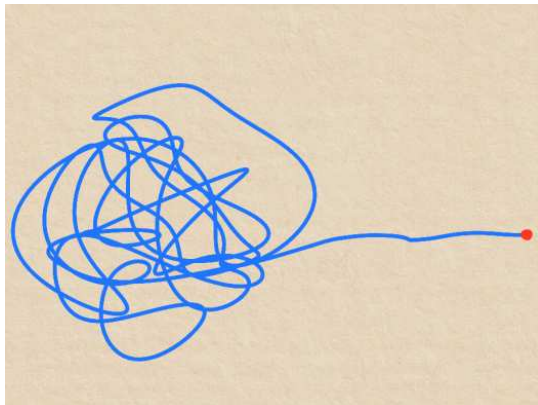
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ABSTRACT

This paper briefly describes how Soft Systems Methodology (SSM) can help individuals and groups trying to improve or develop aspects of their organisations study their situation, model what needs to happen or change and use these models to explore and understand alternatives for action to make meaningful progress and improve the situation for the benefit of stakeholders

1. What is the problem here?

“I have yet to see any problem, however complicated, which, when ... looked at ... the right way, did not become still more complicated.” — Poul Anderson

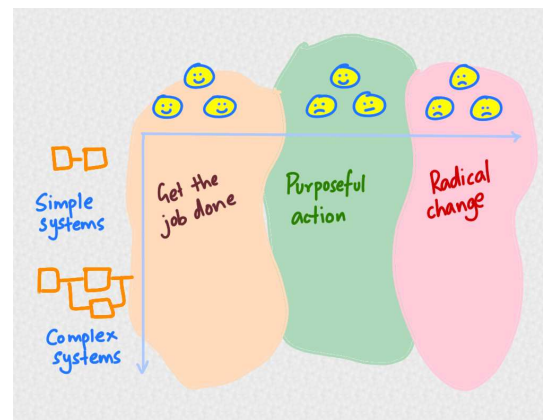


We can think of real-world problems as “hard” or “soft”. Hard problems have clear goals or objectives and we know what a “solution” looks like. What needs to be done can be well defined, the information we need is readily available and the effects of the change is limited to the area of concern. Soft problems, on the other hand, are ones where some or all of these elements are themselves problematic and less clearly understood. In addition, they happen on a background of politics, values and history that must also be appreciated before choosing a way ahead.

For example, a hard problem might be “which brand of boiler should we choose to replace the one that has failed in the energy centre?” A soft problem, on the other hand, might be “how can we turn our city into a zero-carbon beacon of

progress?” In the first case, you can get to a solution following a procurement process. In the second, the network of stakeholders, areas of concern, points of view, values, institutions and political considerations will expand the deeper you go into the problem.

One way of thinking about the different kinds of problem spaces is shown in the image below.



This is called the System of Systems model. On the vertical axis you can build systems that range from simple to complex. This is the axis where engineers and designers live, and if you tell them what you want they can build you something that works exactly the way you want.

Along the horizontal axis is the real world, consisting of people. In some, very rare cases, you get people who are in complete agreement on what needs doing. In this case you get on and implement the system that will get the job done. At the other extreme are people who just cannot agree, where the organisation is dysfunctional. In

such cases, you may need to change the people before you can improve the situation.

The vast majority of cases are in the the middle, where there are people who are trying to take purposeful action - they hold justifiable views and are trying to improve the situation. In such a case what needs to happen is that the people involved have to come to a common view on what needs to be done — an accommodation — before action can be taken but this is easier said than done.

Most people have experience of the complexity of managing soft problems and use various “problem structuring methods” to do this. These range from brainstorming to process mapping and are designed to help the people involved share their ideas and perceptions to find a way forward. The biggest issue with such methods has to do with how replicable they are — how easy it is to trace decisions and actions taken later to the original thinking and exploratory work that went into them in the first place.

Soft Systems Methodology or SSM is one such approach that comes out of Systems Thinking research work carried out since the 1950s. Professor Peter Checkland developed it into a mature and tested methodology over 30 years at the University of Lancaster and one of the biggest contributions of SSM is making the journey taken by individuals and groups from initial thinking to final action clear and auditable, especially when combined with the use of an appropriate software toolkit.

The following sections will describe a method to implement SSM and carry out a systems study of a problematic situation that is being used by organisations in the private, public and third sectors.

2. What happens at the end of the beginning?

The first part of a systems study is to understand the nature of the problem itself. What would you, as the client, expect at the end of such a study?

Ideally, what you would find is that the area of concern has been thoroughly explored. We now know what the main issues are, the kind of work that needs to be done, the things you need to look at in more detail, the ways in which you will select between alternative courses of action, what the main connections and relationships are and what risks you are taking. Importantly, all these will be written down and captured in papers that you can circulate, share and discuss.

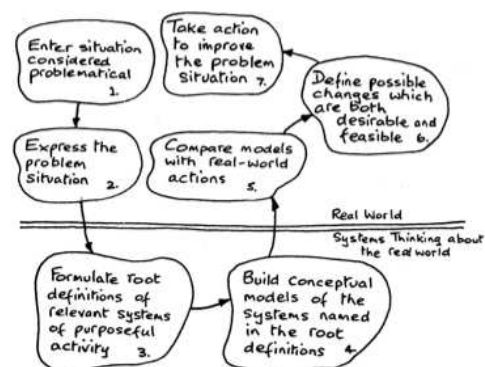
In the real world, as you know, doing the study will very probably change your thinking about the problem from where you started to the eventual place you end up. A study that starts with exploring the technical options for low-carbon generation may end up being a study into the political considerations that will support one form of technology over another despite the underlying economic or technical considerations.

Appreciating this is important because many studies that have come up with a good engineering solution have not been progressed because they didn’t understand what the underlying financial situation was or what the political values happened to be. This doesn’t mean that the study was not a good one — just that it failed to study all the factors that influenced the situation and in particular, the ones most important to actually making a decision.

In problems of these types SSM has shown itself to be a reliable and “rigorous way of exploring the subjective”, and helping clarify the sometimes hidden or unsaid factors that are really important to making a meaningful improvement to the current situation.

3. So, how does SSM work?

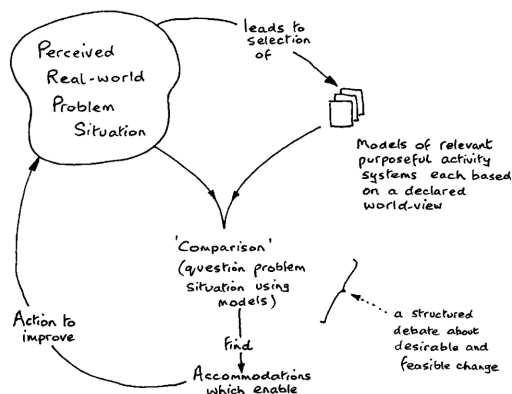
An earlier form of SSM has a detailed 7-stage methodology which is easier for people who are new to the approach to appreciate and is shown in the figure below. It starts with an exploration of what is in people’s minds in the beginning, seeking to make visual their thoughts and beliefs and come up with a conceptual model of what they believe should be. It’s not a model of what is out there in the real world but instead a mental model that tries to look at what should be from the point of view of the people who are affected.



We can then use this conceptual model to ask questions and debate what exists or does not exist

in the real world to come up with ideas and approaches for improving the situation. This explicit separation from thinking about what **should be** and thinking about what **should be done** is a crucial step to moving in the right direction.

This version of SSM can give a misleading impression of a mechanistic and prescriptive process that must be systematically followed. But really, what we're trying to do is learn about the organisation and so we need a learning system and this is better expressed by the developed form of SSM shown in the picture below.



3.1. The study starts with a rich picture

A rich picture is a way to capture the institutions, people and relationships that exists in people's minds as a drawing of the situation.

There are no rules to draw the picture, it is built up from discussions as the participants talk through what they see as the situation and its component parts.



3.2. Problematic areas emerge from the drawing

As we go through the process of talking and drawing, usually over two sessions, related areas start to emerge from the discussions. In the first discussion these usually tell us what the problematical areas are — the main, interrelated issues we

have to keep in mind and appreciate. In the second session, as we dig deeper into one of those problematic areas we start to see issues — things that need to be resolved in order to go forward.

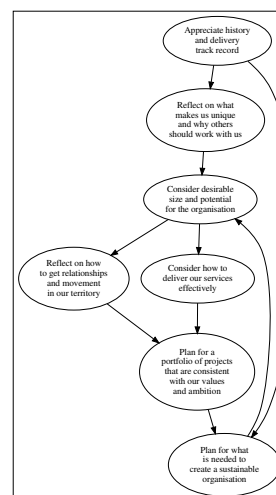
The structure of these areas is not pre-determined, they emerge naturally from discussions as shown in the image below which captures problematic areas in the previous image.



3.3. Come up with an agreed conceptual model

Once we have preliminary problematical areas or issues emerging from our discussions, we can code them up as a formal model, which the stakeholders debate and modify until they are happy with it. This model doesn't need to be perfect because we can always come back and amend it if something needs changing but the point is that before we move forward it needs to be something that the people involved are able to agree is an accurate enough representation of what needs doing for them to be able to work with.

An example of what this looks like is shown in the picture below.



3.4. Root definitions and CATWOE

Closely linked to the work of developing a conceptual model is making it clear who is involved and why they are involved. This is

done by explicitly asking a few questions that are remembered using the mnemonic CATWOE as follows:

- 1 Who is the customer (C)? This is the person asking for the work to be done.
- 2 Who are the actors (A)? These are the people who need to do the work.
- 3 What is the transformation (T)? This is the improvement that will happen as a result of the work.
- 4 What is the worldview or Weltanschauung (W)? What is the point of view that says why we are doing this work in the first place.
- 5 Who is the owner (O)? This is the person or group that can stop the work going ahead.
- 6 What are the environmental (E) considerations? These are the factors outside our control that can help or hinder our work.

This is usually done using a table as shown below.

(C) Customer	Needs the work doing
(A) Actors	Will do the work
(T) Transformation	Current system \Rightarrow Better system
(W) Weltanschauung	Why we do it
(O) Owner	Can stop the work
(E) Environment	Constraints / enablers of the work

Once we have asked these questions and drawn the conceptual model in the previous step we can capture what we want to do in a single sentence or paragraph called a “Root Definition”. Again, this is something that the people involved will debate and agree before moving ahead.

One thing to notice is that you may not end up with a single conceptual model and associated root definition as each one depends on the point of view that is taken. You may need to build several models in order to explore different view points to discover one that matters in this situation the most. This is the kind of work that may take you from thinking that a technical solution is all that is needed to one that appreciates the politics and values involved instead as crucial inputs.

3.5. Iterate until done

These steps are used to structure the systems study until all the problem areas are explored and conceptualised, along with a few other tools that help dig into specific areas in more detail. You may choose to focus on just the most important or try and clarify the main relationships, but you will need to carry on the work until you are satisfied. In our experience, this initial work can set the stage for a two to five year plan of ongoing work and so it makes sense to invest the time needed to think through the situation and develop a plan that is flexible and able to deal with it and the inevitable changes that will happen in the future.

4. How long does it take?

The actual problematic situation study, as discussed above, will depend on the individuals and organisations involved and typically involve a multi-year plan. Our involvement in using SSM can be for as long or as short as needed to assist with the process of carrying out a systems study.

Typically two sessions of an hour each are needed to see the process in action and decide whether it’s worth using. In our experience, after two sessions, the participants have a clear idea of what needs to be done and the kind of commercial structure that can finance the costs of ongoing work and deliver a return on that investment.

5. What to do to go ahead

The next step is to get in touch using the contact details below if you would like to explore using SSM in your organisation to facilitate an improvement or change project.

About the author

Karthik Suresh is a Management Consultant who helps customers with energy, utility, sustainability, research, innovation and knowledge management projects. His experience includes working with large and small organisations to select and implement strategic decision systems, improve and develop management capability and deploy risk management, IT, communications and information systems projects.

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