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# REFLECTIONS ON THE APPLICATION OF SYSTEMS THINKING TO MANAGEMENT PRACTICE

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**Abstract.** This paper contextualizes the ongoing development of Soft Systems Methodology (SSM) through its practical application and learning through use. Based on this learning process SSM has evolved from its roots in "hard" systems engineering in the late 1960s to become an organized process of enquiry, utilizing systems thinking and models to help structure dialogue about possible improvements in situations regarded as problematic. SSM has proved to be useful in a wide range of practical applications in public and private sector and some illustrative examples are provided.

**Keywords***:* Soft Systems Methodology, SSM, learning process, "hard" systems engineering, systems thinking, practical applications.

## SOFT SYSTEMS METHODOLOGY (SSM) IN CONTEXT

As a long time "practitioner" of systems thinking I will share observations and lessons based on its practical use in a variety of problem situations over a period spanning nearly 40 years. This paper is written from a particular perspective. As a long time "practitioner" of systems thinking I will share observations and lessons based on its practical use in a variety of problem situations over a period spanning nearly 40 years. This paper doesn't deliver new theory, but I hope it provokes your interest and encourages you to further explore the use of SSM in practice.

An important question for academics is whether management theories can be developed without any practical experience of doing management. The relationship between management theory and management practice should be seen as groundless: practice informing theory just as theory can inform practice. No Management Science can be developed without testing and learning from practice. As systems thinkers we can choose to frame our interventions in real world problems as opportunities to learn from practice; and we can use that learning to test, challenge and improve theory. In effect every real-world application of systems thinking is an opportunity to learn. This can be viewed as action research and it is from this perspective that I offer some reflections on real-world practice in applying systems thinking.

Although there are many references to Soft Systems Methodology in secondary literature, evidence such as Sue Holwell's research shows that SSM is often misunderstood. This is at least in part because the methodology has continued to develop and has evolve through application and learning over time: hence a description of SSM in the 1980s would have different emphasis and content from a description in the 1990s or 2000 or now. Given the groundless relationship between theory and practice one should expect SSM to continue to evolve. It is therefore important to start this paper with some context about its evolution so far.

Soft Systems Methodology developed through the work of Professor Peter Checkland as opposed to his colleagues in the newly formed Department of Systems Engineering at Lancaster University in the UK. As a group with considerable practical experience in industry, they started in 1969 with a research programme intended to apply systems thinking to real-world problems in organizations that were receptive to the idea of allowing a team of systems thinkers to come

along and help them understand how to do things better in some way. The researchers soon discovered, as would-be-engineers-of-a-better-world, that their initially "hard" centred systems methods, rooted in Systems Analysis and Systems Engineering, when applied to the vagaries of "rich 'management' problem situations", sometimes "fell apart in their hands" according to Checkland. For example, the Anglo-French Concorde project which began way back in the 1950s wasn't simply an engineering challenge to design and manufacture a radically new supersonic passenger aeroplane; Concorde was developed in an emotionally charged transnational political environment in which there were many changing, views of what the emblematic project could or should achieve. The original project spanned two decades before it entered service and costs rose from the original estimate of £70M to £1.3B! Clearly there were problems but agreement about a simple definition of "the problem to be solved" and a "solution to engineer" was anything but straightforward.

Over the first three years of Lancaster's research programme much was learned from practice about the apparent limits of "hard" systems methods in "soft" problematic situations which were always "messy" and often "wicked" in nature. This practice-based learning provided the foundations for what later became known as Soft Systems Methodology. In 1972 Checkland's paper "Towards a systems-based methodology for real-world problem solving" described a set of ideas based on practice that helped to develop the appreciation of some critical differences between "hard" systems approaches and the emerging "soft" methodology. Whereas the "hard" systems thinker might view the world as systemic, literally seeking to engineer systems within that world; the "soft" systems thinker saw the world as complex and confusing but one where systems concepts could be used to frame, explore and learn about the real-world in ways that could lead to action for improvements (figure 1).This differentiation is important for practitioners to understand as it can help inform their choices about how best to deal with different kinds of problems and situations including the possibility of using some combination of soft and hard approaches.

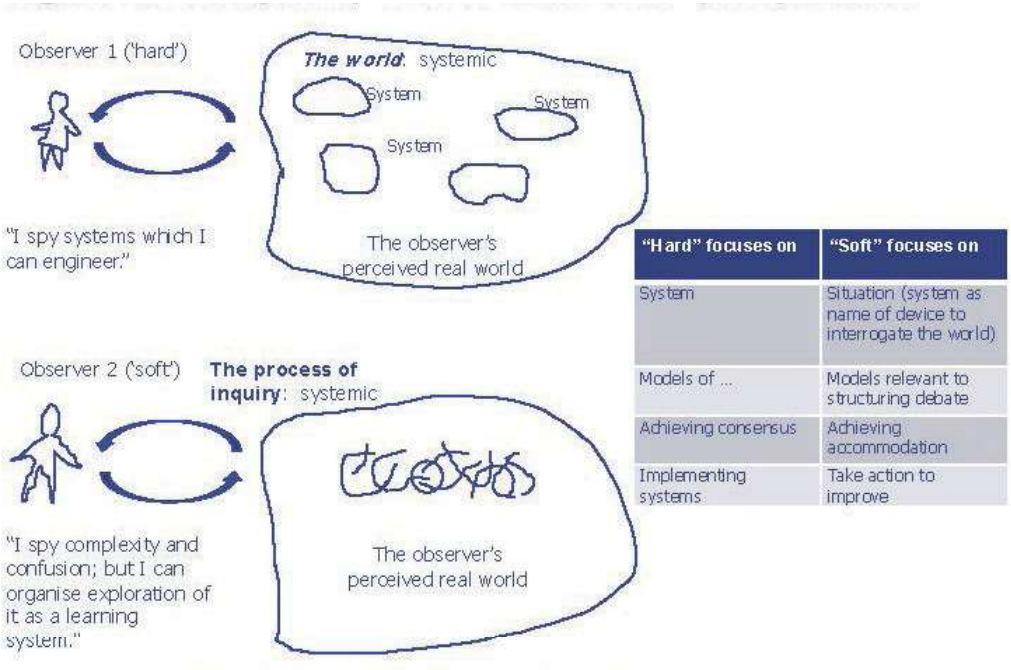


*Fig. 1* Comparing "hard" and "soft" perspectives

Just as "hard" and "soft" can be problematic labels, so is the word "system". Some of the difficulty arises because of imprecision in language. In English the word "System" is in common usage but can actually mean many different things to different people. Some "systems" are indeed very tangible; designed and engineered as "hard". For example, the technology used to write this "paper" is delivered courtesy of the efforts of those who designed and engineered the technology I have used (even though at the time of writing no paper has actually been used in the process!). But the concept of "system" can also be a very useful construct to help systems thinkers better understand things that aren't and can't be human engineered (for example, the solar "system"). In such cases, the value of systems thinking is at a conceptual level and we can choose to use this repertoire of systems ideas to help us better understand whatever we have chosen to study; ranging from the human body to the world we live in and all forms of human activity "systems" in between. This differentiation between things that we can design and operate as systems and those things that we can choose to view using systems ideas is crucially important in considering how and when to intervene in real world problem situations.

## THE SSM PROCESS

In describing the SSM process rather than as a sequential series of steps that must be followed I'm seeking to give some sense of how SSM has evolved over time, based on its practical application; and to differentiate clearly between method as a systematic procedure or technique which may be used for dealing with particular problem types in a particular way to achieve a predictable outcome; and methodology as an organized set of principles based on systems thinking used to guide a process of enquiry and the outcomes it may achieve. This essential distinction is something I learned when I first became involved with Lancaster's ongoing research programme in 1981, initially as a client and would-be-problem-solver working with the Peter Checkland and the Lancaster team using SSM.

Between the early 1970s and the 1980s SSM had been developed through practical application of systems ideas, to situations perceived as problematic, in a variety of organizational contexts. The body of experience accumulated through this action research programme contributed to more precise definition of Soft Systems Methodology. Unsurprisingly, given its roots in Systems Engineering, SSM was characterized as a simple 7 stage model with some important constituent parts such as "rich pictures", models of human activity "systems" and so forth. This level of description was important in capturing and sharing the essence of what had emerged from the research up to that point. This sharing of SSM and the lessons on which it had been built generated considerable interest amongst systems thinkers and, when adopted and replicated, proved to be a convenient and often insightful way of conducting projects leading to real-world improvements; and for capturing lessons from such interventions . Such is the succinct beauty and simplicity of this description of SSM that many have taken it to be a prescriptive "method" rather than "methodology" and seem to see it as ***the*** definition of SSM rather than a description of its emerging form at a point in time. This 7-stage model and its constituents remains powerful and useful for some purposes but SSM has continued to develop beyond it. As mentioned earlier, this is a point not always appreciated in the secondary literature.

So, let's consider the SSM process and what that means. Entering real-world organizations as systems thinkers and would-be-problem-solvers we encounter busy people engaged in activities we might assume to be purposeful. But what we often find as consultants and "outsiders" is that there is only a limited agreement at the most basic level about objectives and actions; and, even then, there may or may not be the organizational capabilities needed to deliver on those objectives. As a brief and simplified illustration consider, for example, how the SSM process might be used in seeking improvements within the UK prison "system" (figure 2). In the UK many people would see prisons as a system to punish

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criminals; others see prisons primarily as a system to protect society; those more liberal in outlook might see prisons as a system to re-educate offenders; and the more cynical might feel that prisons have actually become universities of crime (though not necessarily by design!). Each of these perspectives could be modelled as a conceptual "human activity system" and each model would be very different. The value is not that these models represent designed systems to be implemented, it is that they can be used to facilitate dialogue amongst stakeholders with different perspectives in order to find improvements that can be made in practice. They are of course conceptual models rather than designs of a real-world system.

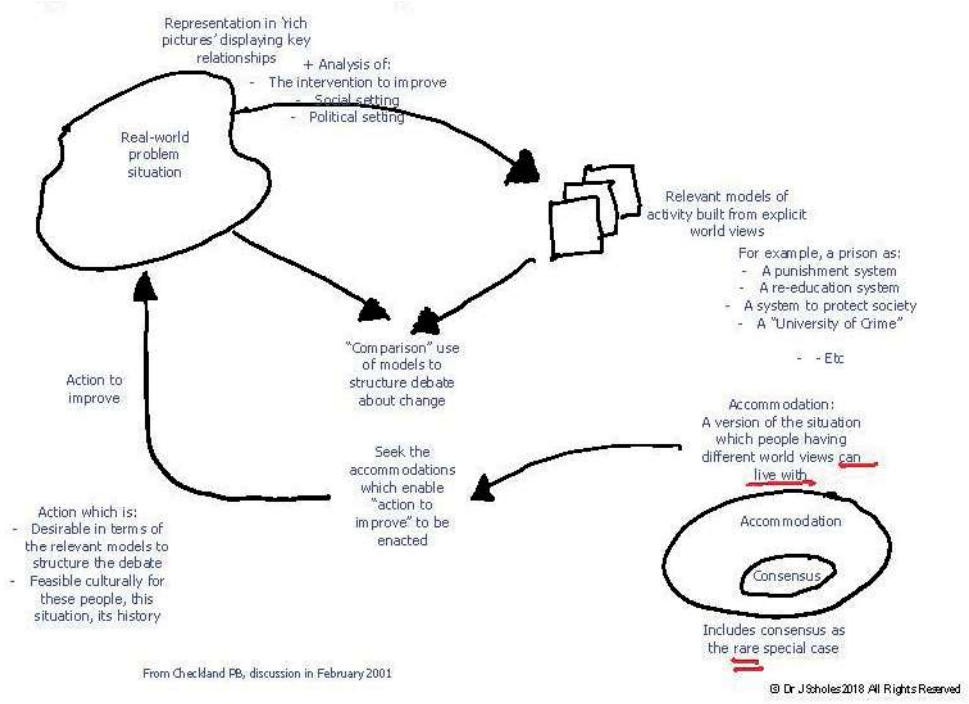


*Fig. 2* The SSM process

Though very much simplified, this illustrative example encapsulates the kind of dilemma often encountered when studying activities and choices in any large organization or project. People aren't automatons and always have their own unstated beliefs and opinions about what's and how's in the workplace. When human beings are involved in any kind of enterprise their daily efforts rarely, if ever, add up to proceeding en masse as directed by some grand design or plan. The conceptual model of a "human activity system" can be an important contribution to help structure a debate about change in the world; but it is not a designed "system" to be implemented in the real-world. Unlike, say, a fully automated production line.

So, SSM can be described as an organized process of enquiry which leads to a choice of purposeful action. Conceptual models of human activity systems that are relevant to developing understanding and potential action, and which represent specific points of view, provide a basis for comparison with what actually happens in the real-world which in turn helps in structuring a dialogue about possible actions to improve the situation regarded as problematic. And every application of SSM creates an opportunity to contribute to its ongoing development.

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## AN ILLUSTRATIVE APPLICATION OF SSM IN A COMMERCIAL ENTERPRISE

As a consultant I've had opportunity to work with large companies in a broad range of industry sectors and geographies. Common, problematic, themes across these client organizations have included issues of leadership, strategy, growth and organizational change. A recent example was in a Branded Petcare company facing increasing pressure on margins and slowing volume growth in its large European business. The newly appointed Head of the European business sought consulting support and I led a small team that used SSM to help design and implement an initiative bringing together over 60 managers from HQ functions and country operations across Europe in a process of strategy "co-creation". For just over 4 months the managers worked together on the project through a series of facilitated workshops to develop a shared understanding of the challenges facing the business; identify growth options; agree strategic direction; and then implement country-specific plans. The initiative helped managers re-shape their business by enabling them to step outside of the day to day flux of maintaining business as usual and take a fresh look at the potential for beneficial changes to the overall business model. Figure 3 illustrates the notion of simply using SSM to "do" the project compared with using SSM in order to make sense of a problematic situation, learning and adapting as necessary in order to move towards an agreed beneficial outcome as in this case.

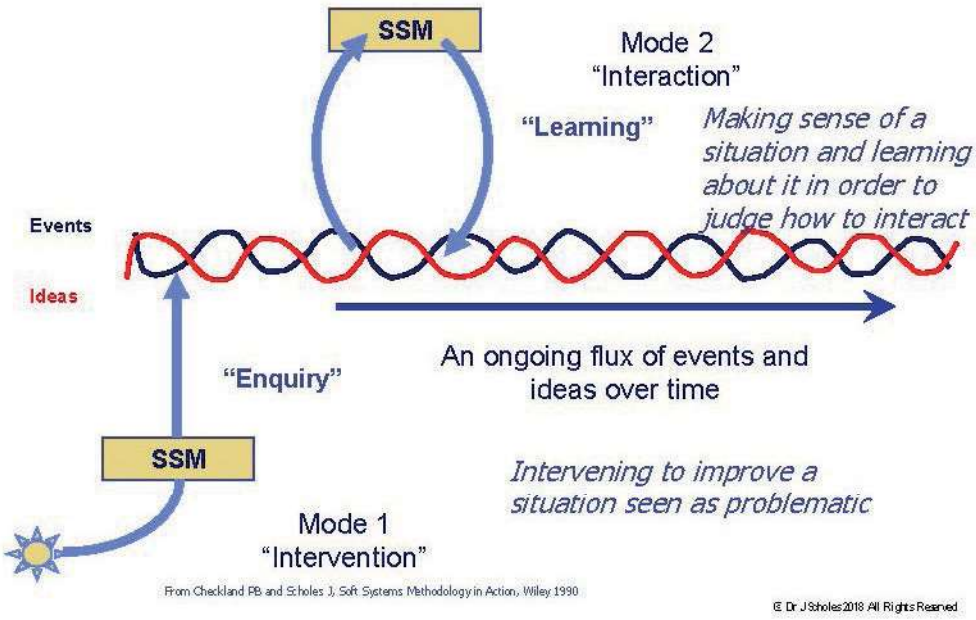


*Fig. 3* SSM as an adaptive learning tool

For example, they looked afresh at the relationship between owners and their pets and this helped them to "re-define" their concept of the business in a way that was significantly different from their previous model and from their competitors. This approach to strategy co-creation across a disparate business was developed using Soft Systems Methodology (SSM) as a diagnostic, design and learning tool at three distinct levels: the overall project initiative; within and between the workshops that were at the core of the project design; and as a tool to support dialogue between the participants

and the Executive Leadership Team that had responsibility for resource allocation decisions to support implementation of the strategy that they collectively created. The outcome of their efforts resulted in significant improvement in sales growth and profits and based on the success achieved in Europe, their approach was adopted worldwide.

## CONCLUSION

Soft Systems Methodology can help systems thinkers dealing with difficult-to-define, messy, sometimes "wicked", problem situations in the real world. SSM can support such practitioners at several levels, for example: getting beyond overly simplistic definitions of "the problem" which, in reality, are only based on individual assertions, and which even if "solved" would be unlikely to achieve any meaningful improvement; helping to build a shared appreciation and constructive dialogue amongst stakeholders using models of human activity systems to better understand the overall context of the problem situation; and helping to make explicit the different worldviews or Weltanschauungen that inform existing assumptions about the nature of the "problem" and possibilities for improvement.

Soft Systems Methodology continues to be developed through application in real-world problem situations and lessons learned through use. Recognising this, a challenge for would-be practitioners is perhaps to appreciate that a once and for all "final" description of SSM will always be elusive. Rather than agonize on this it is better to engage in using the methodology as is, recognizing that it is an ongoing process founded on a set of principles which will continue to evolve through practice and learning.

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