Special Issue, Soft Systems; Theory and Practice. Guest Editor Frank Stowell

Editorial

In the last three decades of the 20th century ideas, new to systems, emerged from an action research project at the university of Lancaster led by Peter Checkland. These ideas provided an alternative way of addressing complexity than the mainstream ideas of General Systems Theory (see Bertalanffy 1968 pp's.8-15). This special edition is devoted to that work and its various applications. The issue has attracted many submissions covering a variety of application areas of soft systems, as witnessed by the12 papers included in this edition. These papers provide a stimulating depiction of the use and of the development of *soft* Systems in general and Soft Systems Methodology (SSM) in particular.

When Checkland joined Gwilym Jenkins in the newly founded 'Systems' based Department at Lancaster he was asked to develop the departments research strategy. He began by taking systems engineering as given and see what happened when these ideas were applied to management problem situations. He found that systems engineering, based on defining objectives, was simply not rich enough to cope with the complexity of human situations. The research led to 3 key ideas. First, in any particular situation there are a number of different worldviews. Second, these worldviews are never permanently fixed, they change because of new experiences and finally, all such real-world situations contain would be purposeful action. The combination of the three ideas led to a process of inquiry which *learns its way into taking action* to improve the situation. This entails finding out about the situation in terms of intervention in it, its culture and its politics, defining some worldviews relevant to exploring the situation. By using these different views as a source of questions about the situation generates a debate about change in which we seek accommodations between different worldviews. The whole process could, in principle, continue until a point is reached that those involved feel actions for change to improve the situation can be formulated and developed into some purposeful activity models based on those worldviews. This is a form of Singerian inquiry, after philosopher Edgar A. Singer Jr.) forms the intellectual foundation of Soft Systems Methodology (SSM) and created a line of research that opened a new chapter in Systems thinking and practice.

The First paper is written by **Mike Jackson** who, like me, was one of the post-graduates studying under Peter Checkland at the University of Lancaster. In the paper Mike calls upon Checkland's notion of F,M,A, as the means of tracing the development of SSM from the deficiencies of Systems Engineering to address organisational difficulties through to what we now call *soft* Systems. In the paper Mike calls upon Checkland's notion of FMA. He draws attention to 'A' the area of interest and 'F' the framework of ideas. This is an interesting juxtaposition as there are implications on 'M' the method/methodology to be used in an inquiry that can create practical difficulties as both researchers and practitioners experience time pressures on their progress. It is here F and M are somethings confused. For example, a researcher might claim that they are carrying out a 'soft' (F) study but after the initial inquiry revert to a systems engineering technique without a convincing argument how the two are compatible. Mike's is drawing attention to the importance of understanding the relationship of F and M. His conclusion is that it will only reach its full potential when the researcher is prepared to entertain a variety of F's and M's.

Miles Weaver, Rebecca J. M. Herron, Kamila Pokorna, David E. Salinas Navarro and Eliseo Vilalta-Perdomo continue with aspects of the evolution of SSM in their paper is entitled *Declaring Worldviews in SSM for Sustainability & Community Learning*. They remind us that 'Soft' systems

thinking has evolved and been widely used for over 50 years in organisational situations where different stakeholders hold varying perspectives when considering actions for change. Their research is concerned with ways of protecting nature and fostering more regenerative and redistributive economies and it is in this context they argue that sustainability is often marginalised or overlooked. In the paper they discuss ways of 'finding out'. They begin with SSM because they argue its key benefit is in supporting community learning leading to meaningful action. They suggest that the cycle of learning created through the application of SSM can be enhanced by initiating conversations on relevant *models for sustainability*. To do this they propose a double loop learning cycle as a means of challenging underlying assumptions and the mental models that may exist within the various stakeholder groups. The application of SSM (as well as other problem structuring methods) can be explored to highlight and bridge the perceived *values-action gap* which can contribute to shifting mindsets and actions towards decarbonisation and a more circular, regenerative future.

This is followed by a paper written by **Frank Stowell** and continues with the theme of the important contribution that Soft Systems Methodology (SSM) to learning about the complexity of issues emerging from organisational inquiry. The paper is entitled *Soft Systems Practice and its Misconceptions*. Frank suggests that the focus on the 'methodology' seems to have diluted the underpinning idea of *soft* systems itself, often resulting in variable and unsatisfactory outcomes. In the paper he suggests that the apparent differences between the way that 'soft systems' ideas are applied can be described in terms of rationalism and empiricism. By highlighting these differences, it may remind those wishing to undertake a 'soft' inquiry of its theoretical origins.

The fourth paper is by **Harry Kogetsidis** and entitled *The Contribution of soft systems methodologies to managing complexity*. In the paper Harry points out that there have been many important methodologies and tools developed over the years aimed at providing solutions to the complex issues faced by society and organisations. These are in contrast with functional analytical approaches, such as traditional operational research that focus on solving problems of technical complexity. The new methodologies opened a new paradigm in management science, where the focus is on creating understanding and accommodating the diverse and often conflicting interests, goals and expectations of the various stakeholders. In the paper Harry discusses the challenges faced by the inquirer in applying these ideas. Ironically in this age of information overload he concludes that the world today seems to suffer from a lack of proper communication and co-ordinated effort, the need for joined up thinking is more relevant than ever before. Soft systems thinking and practice has all the prerequisites to fill in these gaps and the large volume of methodological approaches that exist today can make a significant difference in helping managers and leaders deal with the very complex problems the world faces.

The next paper is written by some old friends of Systems from the antipodes, **Richard Bawden, Roger Packham and Robert Macadam** and entitled *Soft Systems Thinking, Soft Systems Practice and the Evolution of Systemic Development.* The authors discuss the impact that soft systems in general and SSM in particular, have had upon the curriculum at Hawkesbury Agricultural College (Western Sydney University). The Hawkesbury program was based on experiential learning as the central pedagogical process with the study of agricultural systems as the 'hard' academic content. Pre-Checkland, the authors say, that they had been unable to puzzle out how to integrate the process of experiential learning with the substance of systems concepts it was the insights from Checkland that provided the way forward.

They found that a ‘shift in systemicity *from* the world to the process of inquiry *into* that world’ and applying SSM as a ‘learning system’ provided the basis of confronting and escaping the limitations of the conundrum of the study of agricultural systems as the ‘hard’ academic content. SSM was a way of operationalising systems approaches in a practical systemic manner that led to transformative actions for improvements in complex, messy situations through debates about desirable and feasible change. They conclude that that distinctions between systems thinking and systems practice (or between systems theories and systems practices) which so often appear in the literature, fail to capture the power of the dialectic inherent in the essence of systemicity. They argue that their adoption of the constructs ‘systemic praxis’ and ‘systemic development’, captures Checkland’s intent, which is of significant onto-epistemological importance with respect to learning how to develop systemic competencies as well as learning how to *be* systemic.

The title of the next paper is *Applying SSM to reinvent Education for Sustainable Development for future Managers: A tale of two Universities*, in which the authors, **Tammi Sinha and Justyna Maciąg** examine the use of Soft Systems Methodology (SSM) to address the complexities of education for sustainable development (ESD) in higher education. It explores the potential, challenges, and enabling factors associated with SSM as a tool for fostering transformative learning across formal, informal, and subliminal curricula. Drawing on case studies from Jagiellonian University in Kraków, Poland, and the University of Surrey in Guildford, UK, the authors describe workshops involving students, academics, and professional services staff. These workshops revealed diverse worldviews, conceptual models, and “rich pictures,” which informed actionable strategies for institutional and pedagogical change. The study highlights the challenges of introducing SSM, emphasizing the time, care, and contextual understanding required for its effective use. In summary they highlight how culture and discipline influence the work and demonstrate the global reach and transformative potential of applying SSM in higher education.

The seventh paper is written by **Saminda Wattuhewa and Sebamalai Pheerathan** entitled *Reflective Applications of Soft Systems Methodology (SSM) Across Contexts.* This paper examines Soft Systems Methodology (SSM) as a practical approach to investigating complex, ambiguous, and socially constructed problem situations. Grounded in soft systems theory, SSM provides a structured framework for inquiry that prioritises collaborative learning and stakeholder engagement rather than definitive problem-solving. The paper is an exploration of Soft Systems Methodology (SSM) as a structured yet flexible approach to understanding and addressing complex, ambiguous problem situations involving multiple stakeholder perspectives. SSM emphasises learning and collaboration over definitive solutions. By focusing on Mode 1, the study also considers Mode 2 and Analysis 3, which expand SSM’s flexibility and gives attention to cultural and political factors. The authors argue that the methodology supports both single-loop (Type I) and double-loop (Type II) organisational learning, enabling process improvement and deeper systemic change. Its application across management, healthcare, education, and environmental studies demonstrate Its interdisciplinary by fostering shared understanding and participatory decision-making. The authors also compare SSM with Agile methodologies highlighting that despite different philosophical foundations there are shared iterative principles. To this end

they support continued theoretical and practical development of SSM underscoring the importance of integrating soft systems approaches that can surface diverse perspectives and values and reflect the evolving and complexity of modern organisational and societal systems.

Petter Øgland follows this by exploring the application of *soft* systems methods in his paper entitled, *How to AIM for the Future of Soft S*ystems Thinking, in which employs a deliberate pun on the acronym AIM, referring to the Appreciative Inquiry Method. Petter begins with the assertion that while 'hard' systems methods like System Dynamics (SD) are useful for analysing complex systems such approaches are developed by people who decide what aspects are to be included in the understanding of the systems, what the purpose of the systems are supposed to be, and how to interpret the outcome. While these approaches produce credible outcomes these can be enhanced by the inclusion of a '*soft*' Systems method. For example, Soft Systems Methodology (SSM) has shown to be a good interface in many cases, but some practitioners find it too demanding or impractical. The author suggests an alternative, such as, the Appreciative Inquiry Method (AIM) might be as effective. This assertion comes from six years' experience of action research where AIM was used within language pedagogy. This study illustrated how periodic appreciation of a human activity system for learning Spanish has developed through cycles of reality judgements, value judgements and action judgements. The study indicated that AIM would become more effective if assisted by SD-like evaluation principles. To support this the author uses language pedagogy as an example and argues the relevance of soft systems thinking and how the future of soft systems thinking depends on the widespread use of simple and effective methods like AIM. He says that while hard systems methods like System Dynamics (SD) offer powerful analytical capabilities, they are still shaped by the assumptions and judgements of those who construct them. The designers determine which aspects of the system are to be modelled, define its purpose, and interpret its outcomes. Øgland concludes that while such approaches yield credible and analytically robust results, their effectiveness can be enhanced through the integration of 'soft 'systems methodologies.

In one way or another the papers that follow are describing the application of soft systems ideas to information technology and vice versa of its value to SSM.

Daune West provides us with insights into the 'future' of SSM. In her paper Daune discusses the future of SSM *given open AI: the power of 'purpose' and its context (or "A Grok 3 enabled story regarding a future for systems thinking and practice").* The author seems to develop an anthropological relationship with AI as she writes about a recent *discussion* between the author and Grok 3, an Open AI programme. The 'conversation' begins with the author 'testing' the software to discover its ability to describe three related systems concepts: the idea that "all perception is selection" (Youngson, 1996), Vickers' concept of an "appreciative system" (1965) and Checkland's Soft Systems Methodology (SSM) (1981). The software produces a surprisingly discerning description of the three concepts and their associated ideas, and it goes a step further by inviting the author to consider a *thought experiment* where it applies SSM to the historical context discussed by Youngson. The purpose of the exercise was to explore the potential future role of SSM and associated systems of inquiry (such as the KE version of Appreciative Inquiry Method). The conclusion of the exercise was that AI is not only able to offer innovative analysis of existing ideas, but it is also capable of undertaking the sophisticated modelling of 'purpose' (T) within its wider appreciative context (W) that lies at the heart of SSM. The author concludes with the opinion that we no longer need the skills to produce such models but merely need to know how to use the models to create appropriate and useful inquiry. A hint of reductionism perhaps? But the paper does provide food for thought and is also something touched upon by Roger James in a later paper.

Paper ten is written by **Xinlu Qui, Luitzen de Boer, Raymond Andreas Stokke, Ottar Michelsen and Magnus Sparrevik** and is entitled *Creating viable pockets of sustainable change – infusing Soft Systems Methodology with cybernetic principles***.**
The authors suggest that although much has been written about the contribution of Soft System Methodology in addressing societal challenges, including those related to sustainability, much of the existing sustainability literature has focused on relatively well-defined (while complex) problems, criteria and alternatives. But these papers 'take as given' the perspective of one focal decision-maker leaving a gap in addressing unstructured challenges. In the paper the researchers draw upon system thinking to develop methodologies aimed at facilitating eco-systems to evolve toward greater sustainability. In the project they draw upon Cybernetics and Soft Systems Methodology, which they argue offered complementary tools for navigating complexity and guiding systemic change. They describe three consecutive empirical research projects conducted in Norway. Although the projects were different in terms of the sustainability, they shared the same characteristics of complexity and lack of structure, such as the dynamic nature of the system, multiple and multi-level stakeholders, and conflicting or unclear interests and roles of actors. They approached the problem from what they called an inter-organizational eco-system perspective combining the key strengths and features of Soft Systems Methodology (SSM), Cybernetics and Socio-Ecological Systems (SES). From the lessons learnt a set of design principles was generated to address four core challenges: stakeholder and boundary identification, dynamic system modelling, evaluation and comparability, and policy intervention. This research has synergy with the ideas expressed by Weaver eg al above.

Roger James contribution makes up the last but certainly not least contribution to this edition. Roger undertakes a critical examination of the underlying principles of Soft Systems thinking and explores how these might be enhanced for application in Artificial Intelligence (AI) and Large Language Models (LLMs). While acknowledging that Soft Systems Methodology (SSM) has contributed significantly to the development of Systems Thinking, James argues that practitioners have, in some cases, become constrained by the methodological dogma embedded within the process, which is reinforced by technological developments. He further contends that other approaches within Systems Thinking and Complexity Science also adopt a dialectical engagement between the "domain of ideas." The goal of these methodologies, he suggests, is to generate practical options for addressing complex issues. However, James critiques the use of SSM in this context as "kludgy" and overly difficult to implement effectively. He concedes however, that other systems approaches encounter similar challenges. Nevertheless, James describes how SSM can still serve as a useful template for making sense of complex phenomena and discusses how emerging techniques—particularly those associated with AI and LLMs—offer new opportunities for integrating diverse perspectives. These innovations, he argues, may form the foundation for a new technological future in systems practice. Overall, the paper provides a thought-provoking perspective on contemporary interpretations of "Systems," referencing several well-known scholars in the field.

Roger's paper acts as a catalyst for readers to reflect upon the conceptual foundations from which such ideas emerge. With particular reference, in this edition to Jackson's use of Checkland's FMA framework of ideas (1985) and Stowell's work on rationalist and empiricist traditions.