

INTRODUCTION

WHAT IS THIS BOOK ABOUT?

Within the covers of this book you will find ways of addressing and resolving situations that are wicked, messy, and horribly tangled. Furthermore, the situations often appear impossible to sort out. The approaches and methods in this book will help you understand, analyze, manage, learn, change, and evaluate these complex and complicated situations.

Essentially, the book serves a triple purpose:

- It is a *workbook*: it offers a selection of methods that can be used by the reader, based on the information provided. Free online references and other sources are provided if you are interested in more details.
- It is a *primer*: the introductory chapter gives an overview of systems thinking, its origins, and major parts of the field. And it connects with the methods described throughout the book.
- Last but not least, it is a *learning tool*: the methods are not intended to serve as “recipes” or standard tools, but as a menu of options from which to choose. You are invited to combine these instruments in a creative manner. For instance, at the start of each chapter there is a set of questions that highlight the kinds of issues each method addresses. This will allow you to assemble a mix of methods depending on the situation you are faced with.

WHAT THIS BOOK CONTAINS

This book contains approaches and methods that allow you to think and act systemically. Wherever possible, we have included methods that you can take away and use immediately. That is the workbook aspect of this book. In addition, we provide ample information about the principles that underpin the methods, so you can find out more about them and expand your knowledge.

Each chapter contains a description of the approach or method, where the idea behind it came from, when are the best circumstances to use it, how to avoid traps, and a short case to give you an idea of how the method or approach can be applied.

Most of the approaches and methods are drawn directly from the systems field. However, some are drawn from other fields that often display the core features of the systems field, such as organizational development, evaluation, policy development, strategy, and planning.

When writing this book, we drew on our experience as facilitators of many systems-related workshops and also as authors and editors of two previous volumes:

- *Instrumente systemischen Handelns. Eine Erkundungstour*: a German-language compilation of systems concepts and methods, coauthored by Austrian systems practitioners Leo Baumfeld, Richard Hummelbrunner, and Robert Lukesch.
- *Systems Concepts in Evaluation: An Expert Anthology*: a monograph with case descriptions on the application of systems concepts in evaluation, edited by Bob Williams and Iraj Imam.

SHOULD YOU BE READING THIS BOOK?

The book targets those who are trying to make sense of or need to intervene in messy situations. You may or may not already have a general interest in systems concepts or being systemic, but you do wish to expand your repertoire of action in dealing with situations that are difficult to address from your existing toolbox.

So this book is aimed at the following groups:

- Evaluators called upon to help people assess the value of interventions that are clearly very messy with lots of possible ways of judging worth.

- Consultants and coaches, who want to demonstrate that systems thinking leads to far more sustainable results than simplistic thinking.
- Development or community workers trying to steer projects along complicated paths in difficult environments.
- Policy workers who are trying to explore the consequences of adopting various strategies and tactics.
- People in networks or intermediary organizations, who mediate between the public sector, the private sector and civil society and thus need to conceive effective ways for communication and collaboration.
- Entrepreneurs and managers, who want to secure their business in a sustainable manner by reconciling, for example, clients' needs, employees' interests, and environmental concerns.
- Researchers, especially action researchers, seeking out new tools for inquiry and analysis.
- Teachers trying to teach their students how to think and learn about addressing and resolving "wicked problems."

WHAT DO WE MEAN BY SYSTEMIC?

The question can be answered in many ways. A Web search will bring up hundreds of definitions. From the extensive literature on systems and systems thinking, three features emerge as common threads to all methods and approaches:

An understanding of *interrelationships*

A commitment to multiple *perspectives*

An awareness of *boundaries*

These features happen to match one way of understanding the development of the systems field over the past fifty years or so. Up to the mid 1960s, the focus in the systems field was strongly on interrelationships. Between the late 1960s and the late 1970s, there was increasing recognition of perspectives as a critical issue, that people would perceive the same interrelationships in radically different ways. As the field progressed into the 1980s and beyond, the realization came that holism was somewhat of an ideal. In reality, all situations, all inquiries are bounded in some way. The choice of boundaries really matters, since it

determines what is relevant to a systemic inquiry—and what is not. And systems thinkers began to question who makes those decisions of what is “in” and what is “out”; the systems field formally started to address the issue of power.

All of the methods and approaches in this book display these three features—that is what makes them systemic. Some methods emphasize one feature more than others, but all of the features are there somewhere in all of the methods.

HOW THIS BOOK IS STRUCTURED

Faced with questions about the content and structure of this book, we have drawn on many sources and experiences. In terms of content, what should be the criteria for selecting methods? What is the best balance between theory and practice? Should each chapter be a sales pitch for the approach, or something more critically reflective? What form should examples take, and how detailed should case studies be? How many references should there be in a book that is not intended to be academic? How should we select appropriate references? In terms of structure, how should we organize the methods, historically, thematically, or practically?

What Are the Selected Methods?

This book could have easily contained a hundred or more methods, but space was limited. How did we narrow the selection down to nineteen and their variations?

- **Practical.** As much as possible we wanted methods you can use “out of the box” without too much extra study. While that’s not true of every method, it was a guiding principle.
- **Tested.** These are not a set of methods that we dreamed up and are trying to inflict on the unsuspecting world. They are all well established, developed by leaders in the field. Just as importantly, we have used them in various forms in our work. These methods are certainly road tested.
- **Wide-ranging.** We wanted the methods to cover the range of systems concepts and traditions, especially the three notions of interrelationships, perspectives, and boundaries.

- **Multidisciplinary.** We wanted methods applicable to a wide range of fields, including evaluation, social inquiry, action research, organizational development, and social change.

So, looking at the contents list, why is the systems method you know not included? There may be several answers: first, because it did not, in our view, match the criteria outlined above. Or it was too close to another method—you might find it in the section on variations that ends each chapter. Or it was so complex that it would take too much space to explain. And, of course, given the size of the systems field, we may just have not known about it.

You might also think that some methods do not fit your idea of what the systems field is all about. That is probably because the systems field has different traditions with different associated methods. For instance, Europe, North America, and the United Kingdom have distinctly different histories and emphases in respect of systems ideas. This book dips into all of those traditions.

How Is Each Chapter Organized?

Each chapter starts with a list of questions that the method or approach addresses. It is then divided into five sections:

- A brief description of the method, what it can be used for, and where its roots lie in the systems field
- A how-to section that describes the method in detail
- A case example that shows how the method has been used
- Reflections on the method, including where it is best applied, plus its advantages and challenges
- Variations of the method including potential combinations with other methods

Finally, at the end of each chapter, there are some references where you can find out more about the method (e.g., books, Web sites, and online communities). Where possible, we have focused on key references that are easily available.

How the Chapters Are Grouped

The book starts with an introductory chapter that looks at the systemic concepts that underpin the systems methods that follow. Do not be tempted to

skip this chapter, as it also contains some meta-frameworks that will be useful for you.

Categorizing classes of systems approaches is fraught with difficulty. Many have tried, and many terse articles have been written about those efforts. It would be tempting to allocate the methods into which of the three features, interrelationships, perspectives, and boundaries that we consider are the core features of any systemic task. But these are features rather than categories.

So we chose to order the methods pragmatically. Which part of an inquiry does a method contribute to most? We identified three distinctive aspects of an inquiry:

- Describing and analyzing situations
- Changing and managing situations
- Learning about situations, which is the metalevel link that allows us to understand changes, as well as to change understanding.

Of course, the methods do not fit neatly into these three categories, any more than any method is entirely about interrelationships, perspectives, or boundaries. On the other hand, this structure is a useful way to express where each method most powerfully fits and will be useful.

We also feel this structure helps promote one very important aspect of the systems approach: the application of multiple methodologies to any given situation. Most applications of systems ideas will have aspects of describing, analyzing, changing, and learning. And these aspects are interconnected. For instance, we can gain new insights by trying to change a situation, and the subsequent analysis of the result leads to learning. This implies, at least to us, that using a multiple-methodology approach (either the principles or the whole method) in a particular inquiry can often be better than using a single-methodology approach (Midgley 2000). An inquiry that combined elements of, say, Critical Systems Heuristics, Cynefin, and Circular Dialogue would be a very strong inquiry indeed.

The next section briefly describes each method and identifies questions we believe each method addresses most powerfully. In some cases just asking these questions is enough, but most of the time it is useful to know the approach as well!

PART ONE: DESCRIBING AND ANALYZING SITUATIONS

Part One focuses on methods that are primarily used to describe situations systemically and analyze the various boundaries, perspectives, and interrelationships that are observed.

Causal Loop Diagrams

The use of causal loop diagrams is a method drawn from System Dynamics that maps how components of a situation relate to each other. This method is used to explore nonlinear interrelationships.

It addresses the following questions:

- What are the key variables in the situation that interests us?
- How do they link to each other?
- How do they affect each other? Does a variable have a reinforcing or dampening effect on the variables to which it is linked?

System Dynamics

System Dynamics is a method that seeks to explore the consequences of nonlinear relationships and delay. It is usually, although not always, used in conjunction with computer simulation.

It addresses the following questions:

- How does the structure of feedback affect the behavior of a situation?
- How does “delay” in that feedback impact the behavior of a situation that is rich in interconnections?
- What controls the way in which resources flow through the situation? How does this affect behavior?

Social Network Analysis

Social Network Analysis is a field of endeavor that maps the nature of relationships between actors. It is extensively used to understand the consequences (especially for information flow) of different strengths and depths of interrelationships.

It addresses the following questions:

- What are the structural characteristics of a network?
- Who are the key actors in a network, why, and for which purpose?

- How can the network structure or information flows be changed?
- How do these changes affect the network's performance?

Outcome Mapping

Outcome Mapping is a method from the evaluation field that explores the way in which interventions contribute to a result and in particular the way in which changes in behavior of certain stakeholders contribute to a result.

It addresses the following questions:

- How does our intervention contribute to an ultimate goal?
- Whose behavior can we influence in terms of that contribution?
- What is a realistic strategy to achieve that behavior change?
- How do these behavior changes affect our role, and which changes do we have to make to be an effective partner?

Process Monitoring of Impacts

Process Monitoring of Impacts is a mapping process that distinguishes between results and actions that contribute to a result. It usually follows the convention action → result → action → result up a hierarchical chain of increasing and broadening impact. It is very good for clarifying the boundary of an intervention and the interrelationships between action, result, assumptions, and context.

It addresses the following questions:

- How can the behavior of diverse actors be steered in a desired direction?
- What are the key processes for achieving the intended results of an intervention?
- What are the consequences for achieving effects if those processes do not take place as foreseen?
- What should be done if such gaps between plan and reality occur?

Strategic Assumption Surfacing and Testing

Surfacing deep but key assumptions is more difficult than it seems. Strategic Assumption Surfacing and Testing is a well-established method that homes in on them using a mixture of multiple stakeholder perspectives, strategic questioning, and dialectic.

It addresses the following questions:

- Who are the stakeholders that can affect the adoption or implementation of a strategy?
- What assumptions is each stakeholder making about other stakeholders in believing that the preferred strategy will succeed?
- Which assumptions of the other stakeholders does each stakeholder find the most troubling?
- How can these differences be resolved in the service of the strategy?

PART TWO: CHANGING AND MANAGING SITUATIONS

All systems methods are inherently focused on applying the insights they generate to improve or sustain situations. However, some are specifically focused on understanding and influencing the dynamics or perceptions of a situation.

Strategic Area Assessment

Strategic Area Assessment is a means of applying innovative solutions to specific situations and contexts. It is primarily used in regional development.

It addresses the following questions:

- What are the main innovation potentials of an area?
- By which combination of potentials can local and regional stakeholders achieve a maximum leverage effect in changing the development patterns of their area?
- How can local and regional stakeholders ensure that the chosen development strategy will be conducive to the sustainable development of the whole region?
- Which strategic priorities may unleash these potentials, and who is taking charge to pursue these common goals?

The CDE Model

The CDE model is a complex adaptive systems method drawn from Human Systems Dynamics. It explores the way in which framing systems properties as containers (C), differences (D), and exchanges (E) can enable us to understand and influence how complex systems work.

It addresses the following questions:

- What are the conditions that shape a self-organizing process?
- What interventions might influence the path and outcomes of a self-organizing process?

Assumption-Based Planning

Assumption-Based Planning is a method developed by the RAND Corporation that focuses attention on the importance of assumptions made about the nature of interrelationships. In many cases it is a more robust and reliable alternative to business planning or strategic planning.

It addresses the following questions:

- What are the key assumptions underpinning the achievement of a plan?
- What can be done to assure that these assumptions are sustained?
- What can be done to make the plan more robust to assumption failure?

Cynefin

Cynefin is a framework drawn from the network analysis, knowledge management, and the complex systems fields. It distinguishes among “simple,” “complicated,” “complex,” and “chaotic” aspects of a situation and suggests how each aspect can be successfully managed. Cynefin is a powerful analytical tool for matching a situation with a response.

It addresses the following questions:

- How are we framing the situation: as simple, complicated, complex, or chaotic?
- What are the implications of this framing for how we manage a situation?
- What are appropriate ways of managing a situation on the basis of this framing?

SOLUTION FOCUS

Solution Focus is a technique that was originally developed in family therapy. Problems are “ignored” by directly exploring solutions based on events occurring in the past or present, which helps to overcome states that previously have been considered problematic.

It addresses the following questions:

- What would it be like if the problem suddenly disappeared?
- Who should be doing (or stop doing) what to reach that ideal situation?
- How can these actions be supported and by whom?
- Which elements of the solution take place already?

Viable System Model

The Viable System model is a long-established method drawn from the cybernetics tradition. It illustrates the information requirements and necessary interrelationships between five generic, interconnected systems present in every purposeful organization. It is powerful for identifying necessary information flows between the systems and the consequences of getting these flows out of balance.

It addresses the following questions:

- What are the operational, coordination, management, strategy, and governance needs of the situation to deliver on its purpose?
- What information is needed at each level of the situation to achieve the purpose?
- How does information flow through the situation?
- Is the right information available at the most appropriate level of a situation's hierarchy of tasks?

PART THREE: LEARNING ABOUT SITUATIONS

There are data, there is information, and there is knowledge. While the transformation of data into information is essentially about context, the translation of information into knowledge is a sense-making process, often deeply personal. Your knowledge is merely data until I have made sense of it. The early days of so-called knowledge management assumed data were knowledge, that your knowledge would automatically become my knowledge in exactly the same shape and form. (It is still a common view, unfortunately.) There are, of course, many forms of sense-making and entire bookshelves dedicated to "learning." The distinction we make about learning is very simple. Learning is the process of taking things that puzzle us and transforming

them into deeper understandings of a situation that is of interest to us, and how we can intervene.

The important concept here is that of dialectic: the process of bringing together opposites, contradictions, and different perspectives and holding them together until we can in some way reframe, resolve, or, in Russ Ackoff's famous phrase, "dissolve" the tension. These methods are usually highly participative and encourage multiple viewpoints.

Cultural-Historical Activity Theory

Cultural-Historical Activity Theory (often shortened to Activity Systems) is one of the few systems approaches based on learning theory as well as systems theory. This approach specifically seeks to understand how addressing contradictions within systems promotes innovative solutions.

It addresses the following questions:

- What fundamentally are the motivations underpinning the achievement of a goal?
- What tools, rules, and roles are necessary for that motivation to be translated into goal-directed activities?
- How does the system handle contradictions in tools, rules, roles, and motivations so that the goal is achieved?

Soft Systems Methodology

Soft Systems Methodology brings together alternative ways of viewing situations that can be used to address problem situations.

It addresses the following questions:

- What are the different ways in which a situation can be framed?
- How does each of these ways, on its own, provide a means of comprehending how a situation behaves?
- What are the implications for any changes to the situation?

Dialectical Methods of Inquiry

This chapter describes three methods of inquiry that deliberately seek out differences rather than similarities in order to deepen understanding of a situation. These methods are

Option one-and-a-half

Convergent interviewing

Contradiction analysis

Dialectical Methods of Inquiry address the following questions:

- What are the different ways in which people see or can see a situation?
- What are the exceptions or contradictions to the way in which people see or can see a situation?
- How can exploring and making sense of these differences enhance our understanding of a situation?

Scenario Technique

Scenario Technique is a perspective-driven technique that seeks to avoid problem solving by working backward from potential solutions.

It addresses the following questions:

- What are the key influence factors that determine the future development of the system in question (e.g., enterprise, community)?
- How can the system in question thrive under various possible future conditions, using emerging opportunities but avoiding possible risks at the same time?
- What are the core elements of a robust strategy for the system in question?
- Which are the early signals indicating that certain contingencies will eventuate?
- How can the stakeholders foster the system's resilience by obviating even unexpected disturbances?

Systemic Questioning

Systemic Questioning is an approach for exploring the investigative qualities of language patterns. It was originally developed in family therapy. Beyond obtaining information, questions can also be used to trigger change in perception or generate new information and knowledge.

It addresses the following questions:

- How can you get a multidimensional picture of a situation?
- How can you identify leverage points in your quest for solution-oriented interventions?
- How is it possible to address delicate but relevant content without offending the privacy of those in the dialogue?

Circular Dialogue

Circular Dialogue is a method that forces participants to take a critical stance on a topic by progressively shifting the focus of a discussion. Its primary use is to understand perspectives.

It addresses the following questions:

- How can a situation be seen from different angles or perspectives?
- How do other points of view challenge our way of seeing things?
- What can we learn from opposing viewpoints, and how can they be overcome?
- How can different perspectives lead to a new understanding of the situation?

Critical Systems Heuristics

Critical Systems Heuristics is a tool primarily designed to identify key systems boundaries and explore the consequences of setting those boundaries. It is helpful in understanding that “unanticipated” behaviors are often not unanticipated at all.

It addresses the following questions:

- What and who are being excluded or marginalized, or who is made a victim by the way in which a situation is bounded (i.e., being viewed, framed and/or being operated)?
- How might different and often conflicting boundary judgments on a situation be reconciled? What are the implications of not questioning and debating boundary judgments?

REFERENCES AND FURTHER READING

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