Week 1 Weekly Notes

Week 1: Introduction to systems thinking and systems practice

Key Reading

Here is the required reading for this week:

Module Text

  - Chapter 2, ‘Thinking About Strategy and Organisational Change: The Implicit Assumptions Distinguishing One Theory From Another’ (pp.26-31 only)
  - Chapter 3, ‘The Origins of Systems Thinking in the Age of Reason’ (pp.51-61 only)
  - Chapter 4, ‘Thinking in Terms of Strategic Choice: Cybernetic Systems, Cognitivist and Humanistic Psychology’
  - Chapter 5, ‘Thinking in Terms of Organisational Learning and Knowledge Creation: Systems Dynamics, Cognitivist, Humanistic and Constructivist Psychology’
  - Chapter 6, ‘Thinking in Terms of Organisational Psychodynamics: Open Systems and Psychoanalytic Perspectives’
  - Chapter 7, ‘Thinking About Strategy Process From a Systemic Perspective: Using a Process to Control a Process’
  - Chapter 9, ‘Extending and Challenging the Dominant Discourse on Organisations: Thinking About Participation and Practice’

Articles

Introduction

This week we examine the organisation and organisational dynamics. Systems thinking and practice are also examined as the means by which organisational dynamics can be understood. From the start, the ontological and methodological positions are clearly stated. The purpose of this is to ensure that you are confident of the reasons why a systems approach to understanding organisations is both appropriate and informative. In looking deeper at the methodological issues involved, we will see why action research is inevitable in an organisational context.

Key themes

The key themes outlined in the Weekly Notes raise questions and issues that will help you to learn about complex adaptive systems (CAS). Three steps are required:

1) Establish the problem addressed by managers that requires a systems approach.

2) Demonstrate why action research emerges as a solution approach to these problems and understand why it is both academically credible and practical.

3) See how systems analysis and action research are inextricably linked.

Once you do this you will be able to articulate in a convincing manner to colleagues and academics why the problem you are addressing as part of your research can be answered using the concepts, tools and techniques of this module.

A key point about action research is that issue identification and question framing are critically important. Framing and asking relevant questions are some of the most difficult exercises to do in the workplace. There are three key themes to this week.

Theme 1: What are the problems that require management attention and how might we think about resolving them?

Organisations are ‘problematic’ and it is the task of managers to address or solve these problems.¹ Thus, managers undertake tasks, or a series of tasks with the desire to provide direction, implement control and regulation and satisfy the objectives set out for the organisation.

The nature of the problems faced by 21st century organisations is probably obvious. These include (in no particular order):

- There are often challenging and complicated market environments.

¹ We use the word solve in a guarded sense since problems in Complex Systems are likely to be immune to ‘solution’ in a conventional sense as we will see.
• Regulation is increasing both in depth and scope.
• Products and services offered are increasingly not straightforward: they require careful design, development and production.
• The boundaries of organisations are increasingly unclear as business collaborations increase in both form and content.
• Many organisations face difficult political and economic environments beyond regulation.
• Production and market places extend globally.

The nature of the issues involved requires managers to balance the organisational activities with many of the external pressures itemised above. Thus the picture is a complicated one because the organisation is not immune to external pressures, and, in many ways, the organisation that most efficiently adapts to these pressures, whilst achieving its objectives, is most likely to succeed. We call this fitness. The external environment is often referred to as a landscape. And the task of managers is to navigate the organisation over this landscape.

So, the key problems for managers can really be looked at in a slightly different way:

• Recognise that organisations are not isolated entities and that they operate in a context.
• In accepting the proposition that context is important, managers must then decide on how to manage an organisation to be ‘fit’ over the landscape.
• Once fitness is accepted as an idea or an issue that managers must address, it follows that the process of adaptation to the landscape emerges as a key activity.
• In acknowledging that environment circumstances change, managers must be alert to how the organisation can remain fit in relation to changing circumstances. Landscape changes by actions of the organisation and by all the players around it. In this way, managers must begin to think about how the organisation is actually connected to its landscape, and what the dynamic properties of the relationship are.
• In order to do this, managers must think of solution procedures that will help them understand, analyse and address what is, in fact, a complex and dynamic situation.

The key issues drawn out in Stacey (2011) are that organisations face a complex environment; that the management task of navigating the organisation across a landscape is conventionally referred to as strategy; and at a deep level, the most difficult issues relate to adapting the organisation for fitness. This implies that, at this deep level, managers are concerned with organisational dynamics. Thus, the application of strategic knowledge is to solve a dynamic problem.
The systems approach recognises that the issues that face management are richly interconnected, both within and from outside the organisation. It is these relationships that force managers to look beyond the boundaries of the organisation in order to address the issues facing the organisation. There are two difficulties that managers must confront: first in identifying all of the influences on an organisation and, second, in identifying all of the connections and linkages between the organisation and its landscape. The two are not the same. Certain external influences (such as industry regulation) can be deeply connected to the organisation, whilst other influences might only be peripheral. The extent of connectedness makes the sum of the issues involved exceed the number of parts that you can identify. So, even if you attempt to understand all of the parts, your understanding of the connections and how they influence the organisation and the depth of influence may mean that the task becomes impossible.

Trying to understand the organisation and its landscape by deconstructing its parts—attempting to understand it in the same way a mechanic understands a car engine—may be inappropriate. The business environment is not controllable in the same way that a car engine is. Also, the landscape that managers try to navigate through, and the organisation they manage, consists of human intentionality and, so, we must recognise that what we face is a deeply complex, and in many ways unpredictable, situation. A systems approach addresses these issues. It is one way of describing and understanding how organisations relate to their environment. And systems analysis provides us with some tools and technologies that assist in understanding how to tackle the problems that managers face.

A systems approach is appealing for further reasons. First, a systems approach which values ‘holism’ provides a perspective that allows us to think about entities and their connectedness. Second, it is also interesting to note what Jackson (2010) says about cognitive systems, in that they provide frameworks that allow us to link various elements of knowledge into understandable pictures: that is, understanding something requires both a detailed and holistic perspective. This focus on cognition resonates with the material in Stacey (2010). In seeing this link, look for cognition expressible in terms of the intellectual norms such as ‘simplicity, regularity, uniformity, comprehensiveness, unity, harmony, economy’ (Jackson, p.18). A systems approach naturally appeals to such intellectual norms. Third, systems approaches have proven themselves to be effective in addressing areas of concern; that is, the problems that managers face. Or, in the words of Jackson (p.18), ‘systems methodologies can assist in the task of translating social theory into a practical form and encapsulating its findings in well-worked-out approaches to intervention’.

In sum, our object of attention is the dynamic organisation. Our attention has been drawn to this object because of the nature of the problems faced by managers.
These problems place the organisation firmly in a dynamic, complex environment that has many attributes of a system. We will naturally therefore look to the properties of systems to understand and address the issues raised.

**Theme 2: Action research**

In order to begin to tackle what appears to be an uncountable set of interacting issues and to apply systems analysis, you will need to think about just how understanding and knowledge are created.

There are different types of research that can take place which leads to the creation of new knowledge. The word *research* is used in a very general sense as any activity that involves learning about a problem or issue in order to address and possibly solve it. Hence, the word *research* is not simply confined to academic research. This is important.

So what are the elements of research? Using Checkland and Holwell (1998) there are three elements:

- A framework of ideas (F): defined as the current appreciation of the discipline and the knowledge contained in the discipline, for example, 'strategy' as a task used by managers to manage organisations.
- A methodology (M): the approach used to apply F. For example, what is current good practice in applying strategy?
- An area of concern (A): the issue that has drawn the attention of managers. Managers apply M to address A. For example, managers will apply a particular strategy to solve or address an issue of entering a new market.

This is captured in Figure 2.1 of Jackson and is also dealt with in Checkland and Holwell.

Scholarship is one type of research. This is normally associated with academics. In the social sciences, the predominant element of research is F. Engagement in actual problem solving requires action at A. Hence there is often a disconnection, leaving managers thinking that academic research is not relevant to organisational problems. Another type of research is the science-based, hypothesis testing approach that aims to increase understanding of all elements: F, M and A. This approach relies on control and replicability, neither of which is present in social settings.

Both scholarship and science-based types of research are referred to as Mode 1 research in Checkland’s terminology. As such Checkland and Holwell’s focus is on F rather than A since their focus is in developing academic disciples as encapsulated in frameworks of ideas.
A re-emphasis on A to directly set out to solve issues in A has been called-for. This is known as Mode 2 research which is:

‘Knowledge production carried out in the context of application and marked by its: transdisciplinarity; heterogeneity; organizational heterarchy and transience; social accountability and reflexivity; and quality control which emphasizes context and user dependence’.

(Gibbons et al., 1994, as quoted in Jackson, 2000, p.13)

Thus Mode 2 research is:

• Useful to managers (focus on A)
• Will require multiple disciplines to address problems (many approaches in M)
• Has a loose or transient framework of ideas (F), and hence broad applicability is unlikely

Hence, direct relevance (focus on A) provides usefulness. Multiple approaches to solving generates ‘best practice’ arising from the inter-disciplinary approaches adopted in M. Finding a general theory (F) is not likely to be possible.

Action research (AR) then emerges as an important research approach in this context. AR is testing theory in action that seeks to address practical concerns in a systematic manner to increase knowledge of a problem situation. As such it crosses the boundaries of Mode 1 and Mode 2 research. In addition, Checkland and Holwell (1998) point out that AR activity seeks to influence the problem situation and, as such, is distinguishable from ‘traditional’ approaches to research. In this sense, AR is an interpretivist research approach that recognises the inevitability of action researchers changing the area of concern (A). What is the point otherwise?

Importantly, action researchers contribute, by addressing A, to both M and F, since the evidence they accumulate arising from the actions they take will inform both M and F. This is why action research leads to more knowledge and is also a learning mechanism. AR therefore both addresses A and increases knowledge (F).

**Theme 3: The systems approach and action research**

Systems approaches have proved themselves to be effective in addressing areas of concern (A). Action research is the device that translates M into A. And the evidence, accumulated from experience in A, solved by means of systems analysis in M, increases our knowledge in F. Or, recall again Jackson (2010, p.18) who suggested a link between systems methodologies and the translation of social theory into a practical form of intervention.
Thus action research helps managers solve or address problems and leads to increased knowledge. At a profound level, and not just by accident or coincidence, action research is a learning system.

A systems approach is valuable because it allows new perspectives that reveal important properties of the problems managers try to solve. For example, one deeply important property is that of a ‘boundary’. Boundaries are important in understanding different perspectives on a problem, which we will later see is a central notion of Soft Systems Methodologies. This turns out to be central to intervention and defining regions of control, and, since action research is intervention writ large, we can immediately see the usefulness and link between systems and action research.

Moreover, the notion of boundaries highlights the issue of ‘open systems’. These are systems that, according to Keynes, are not homogenous through time. They are hard to define and categorise because they change: their scope is essentially hard to pin down. Scientific investigations of such systems fail the replicability test and hence will never be appropriate. What is left is to learn about what we observe through a pragmatic approach or, as Rosenthall quoted in the Barton, Stephens and Haslett (2009) article put it; ‘Any philosophical system is inadequate if not grounded in the level of the full richness of lived experience’.

We therefore experience open systems in nearly every field of management activity and which can only be discovered and understood through a pragmatic research approach, such as action research (AR). AR is a learning system because it requires diagnosis of a problem, leading to understanding. Emery (1999)—quoted in the Barton paper—highlights the requirement to ‘learn from the environment’, which is a requirement that arises from an open system. Also, agents or actors in such a system are not passive recipients but both influence and are influenced by the environment. This is co-evolution and it is a dynamic property. Thus strategy in such an environment is inherently a way of addressing a dynamic problem, and the problem of formulating strategy is a learning problem that is addressable by AR. AR is a learning device because of its double-loop nature and subsequent critical reflection.

An approach to understanding such an environment is through systems analysis. Chapter 3 in Stacey (2011) introduces the idea of systems and systems thinking. He goes on to develop his ideas concerning cognition in such an environment in Chapters 4, 5 and 6. There are important aspects about organisational learning and open systems in these chapters. Chapters 7–9 in Stacey consider issues regarding how managers might think about systems and strategy.

Chapter 1 in Jackson, provides a good introduction of the need to think in a systems manner and, importantly, looks at the benefit of such an approach to managers in various settings: as a practical solution provider, as a researcher, and as someone
unsatisfied with the failure of management ‘fads’, the ‘visionary’ manager. Chapter 2 of Jackson provides an introductory framework to understanding knowledge creation in a systems environment.

The Barton, Stephens and Haslett (2009) paper is a review paper and, as such, provides quick access to the links between open systems and action research.

Appendix: systems concepts and ideas

You will find some fairly general observations in Stacey’s introductory chapters as to what systems thinking has entailed over the years and how systems thinking increases knowledge. Here are some concept definitions and terminology that will help you get to grips with systems thinking. These definitions are adapted from Ison (2008).

**Boundary** – The term *boundary* refers to borders of the system, determined by observers, which define where control action can be taken. Boundaries define a particular area of responsibility to achieve system purposes.

**Connectivity** – *Connectivity* refers to dependence between elements within a system and entities and elements between systems.

**Emergence** – The term *emergence* includes properties of a system that are not present as combinations of elements of a sub system. Thus, an emergent property cannot be understood in a reductionist sense (see ‘Reductionist’ below).

**Environment** – A system’s *environment* includes the context (or contexts) of the organisation that is represented by a different system to the organisation’s system.

**Hierarchy** – *Hierarchy* is a system representation that recognises different systems levels or layers.

**Networks** – *Networks* present a system description in terms of entities (nodes) and their connections (links).

**Perspective** – A system *perspective* is shaped by personal circumstance and is a cognitive act.

**Reductionist** – A *reductionist* view means that a system layer or boundary may be defined at the point at which it becomes understandable. Put the other way, a system layer cannot be described by looking for lower-level resolution because the big picture becomes lost.

**System** – A *system* is an object described by its components and connections (or nodes and links). Different system layers can be observed arising from emergent properties or the failure of reduction.
References


