

# A Systems Approach

*to Substance Use Services in Canada*



Canadian Centre on Substance Abuse  
Centre canadien de lutte contre l'alcoolisme et les toxicomanies

## Systems Approach Workbook

### Systems Thinking and Complexity in Substance Use Systems

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#### Who should read this brief?

- Leaders and decision makers in the substance abuse and mental health services field, such as regional directors and program managers
- Anyone interested in learning more about working in a complex system

#### Why are systems thinking and complexity important to a Systems Approach?

- This brief is part of the Systems Approach Workbook, which is intended to assist those using the Systems Approach report as a guiding framework for improving the accessibility, quality and range of services and supports for substance use in Canada.
- The workbook supports a change management approach to system development, which should be informed by the level of complexity of the system in which change is taking place.
- Services and supports for substance use in Canada are located within broader, interconnected health and social systems.
- This brief will help you assess the level of complexity in your system, and better understand its impact on change, project implementation and leadership.

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## Executive Summary

### Why are Systems Thinking and Complexity Important to Substance Use Systems?

Substance use systems in Canada exist within a complex setting that features a number of different health and social service sectors, jurisdictional divisions, population characteristics and treatment approaches. This complexity often results in barriers for those working within the system as well as those trying to access the system. The *Systems Approach to Substance Use in Canada: Recommendations for a National Treatment Strategy* report was developed to address these barriers. Implementing its recommendations for improving the accessibility, quality and range of substance use services and supports in Canada will require a strategic approach that accounts for the complex nature of the system.

### What is Systems Thinking?

Systems are characterized by dynamic relationships between inter-related components that make up a whole. The human circulatory system, the global financial system or a provincial health system are just a few examples of such complex systems. Systems thinking means looking at the component parts and their characteristics, relationships and interconnections to better understand the whole.

### What is System Complexity?

System complexity is determined by the level of agreement and certainty between cause and effect. The levels of complexity most commonly used are simple, complicated, complex and chaotic. In a simple system, for example, everyone agrees that a given action will predictably have a given effect. In a complex system, however, the dynamic nature of the relationships between different system components means there are often many different perspectives and a high degree of uncertainty regarding the effect of a given action.

### How Do I Apply Systems Thinking and Complexity?

Changing a complex system in the direction of particular goals is certainly possible, but it must be approached differently than change within a simple system. Strategies such as comprehensive context analysis and system mapping, monitoring for emergent considerations or unanticipated impacts, and identifying key leverage points promote efficacy and sustainability. David Snowden's Cynefin Model advises leaders to "probe, sense and respond" when approaching complex systems, and to look for emerging practice that responds to the system's characteristics rather than restricting options to established best practice that may not be as responsive to context.

## A Brief Introduction to Systems Thinking and Complexity

*Systems thinking is, more than anything else, a mindset for understanding how things work. It is a perspective for going beyond events, to looking for patterns of behaviour and seeking underlying systematic inter-relationships which are responsible for the patterns of behaviours and the events. Systems thinking embodies a world view that the foundation for understanding lies in interpreting relationships within systems. ~ Gene Bellinger*

Services and supports for substance use are provided within a complex environment that intersects health, social, legal and enforcement sectors. Working within that environment requires responding to, adapting to and implementing ongoing changes at the client, program, funding, administrative and political levels. This brief is intended to help analyze and understand the level of complexity of the systems in which we work to approach change in a more strategic and effective way.

The [Systems Approach to Substance Use in Canada: Recommendations for a National Treatment Strategy](#) report was developed to improve the accessibility, quality and range of substance use services and supports in Canada. The report presents eight guiding concepts for developing a comprehensive substance use system. The concepts are intertwined; for example, ensuring there is “no wrong door” requires an ongoing commitment to “collaboration” and “coordination” across the system. This inter-relationship—and the complexity of the context in which substance use services are provided—indicate the need to think and work from a systems perspective. The report introduces system and complexity concepts that are particularly relevant for understanding and facilitating organizational change and determining how best to develop and sustain a comprehensive, coordinated system.

### Systems Approach Guiding Concepts

- No wrong door
- Availability and accessibility
- Matching
- Choice and eligibility
- Flexibility
- Responsiveness
- Collaboration
- Coordination

With roots in biology, mathematics and philosophy, systems thinking and complexity theory<sup>1</sup> have emerged as highly relevant concepts in social and organizational contexts. When considering processes for planning and implementing change, it is helpful to move away from linear, sequential thinking and look through a more developmental and evolutionary lens, particularly when dealing with complex systems and environments like those found in substance use and mental health.

Complex systems come in many different forms—ecosystems, economic systems and solar systems, for example. The common thread is the dynamic relationships between the various components that make up the whole. Using a “systems lens” means looking at situations and contexts in ways that

<sup>1</sup> As organizational systems thinking and complexity are relatively new areas, there is little or no agreement about terminologies and models. The terminology and models presented in this document are intended to introduce the audience to systems and complexity in a way consistent with dominant trends in the emerging evidence, not to exclude new or alternative approaches.

allow us to see the many component parts and their relationships. Seeing the broader system also allows us to make more deeply informed choices and respond to root causes versus reacting to symptoms. We know, for example, that attempting to isolate and treat only a substance abuse problem is not an effective way to help clients. A client-centered model means considering the client as a complex whole, with needs that may span substance use, mental health, parenting and employment—all of which should be considered in the context of gender and diversity. Similarly, trying to introduce a new program or approach in the substance use system without considering the complex context created by other health and social services, population needs, program staff, community partners and funding availability is unlikely to be effective.

### **Why is it Important to Consider Systems and Complexity?**

From the perspective of those seeking help with substance use and other issues, access to health and social services can be experienced as fragmented and inconsistent. To get the help they need, individuals must often navigate an array of disconnected services, not all of which are easily identified and located. This process can be time consuming and frustrating, deterring many people from addressing the problems for which they seek help—which can further damage or complicate an already difficult situation. Improving the accessibility, quality and range of services for substance use means seeing those services as part of a system, connecting fragmented or disconnected parts, and identifying underlying relationships and connections.

### **Characteristics of Complex Systems**

Most people working in the substance use or broader health and social service fields would agree that they work in complex systems. Explaining exactly what complexity looks like, however, can be a challenge. The following characteristics are common to complex systems and important to consider when embarking on change within those systems.

#### ***Adaptive and emergent***

A complex adaptive system is one that learns and changes based on its experience. People are constantly adapting to those around them and to their circumstances. Organizations such as those in the substance use system exist in a highly dynamic environment that is constantly changing in unpredictable ways. Leaders must be vigilant for what is emerging in the system and ask, How are people adapting to the change? What are the emergent issues and opportunities that need to be taken into consideration and adapted to?

*The essence of mastering systems thinking as a management discipline lies in seeing patterns where others see only events and forces to react to. ~ Peter Senge*

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#### ***Interconnectedness***

Complex systems cannot be understood by examining their pieces in isolation. Instead, they must be understood as a whole, including the way they are interconnected and interactive. In the substance use field, recognizing the connections between direct and associated service systems creates opportunities for collaborative practice such as shared care models and referral networks.

The Systems Approach Tiered Model reflects the enormous interconnectedness within substance use service providers and related services. This connectivity is critical given that clients are often accessing services in several parts of the system. Changes in one part of the system (e.g., staffing, workforce development, information systems and scheduling) will often be felt throughout the system and have implications (negative or positive) for clients. A systems approach requires individuals and agencies to look beyond their own service area mandate and to anticipate the consequences (intended and unintended) of policy and practice change on collaborative relationships throughout the service continuum.

Ideally, a service system will function through interactive partnerships that place the client experience at the centre. It will respond readily to the changing needs of individuals, families, communities and regions with a commitment to quality of service and excellence in practice. To achieve this dynamic service continuum, individuals and organizations must move from a “me” orientation to a “we” orientation. A systems approach is about how the members of a larger system function interdependently through collaboration, cooperation and commitment to meeting clients’ needs.

### ***Multiple perspectives***

The integration of mental health and substance use services is an example of a change that typically evokes strong responses and beliefs in stakeholders—either for or against. These responses are rooted in what people know about their own context and what they know (or think they know) about the other. While mental health and substance use services may be closely linked and even integrated, it is not uncommon for professionals in both fields to express a sense of being misunderstood and stigmatized by the other. Acknowledging and openly addressing these perspectives is an important part of increasing collaboration.

Each part of a social system will have its own viewpoint and can only hold a partial perspective. Those involved in planning and implementing systems change must make an effort to learn about and understand those perspectives. How do professional and cultural backgrounds affect perceptions? Opinions may also be rooted in previous experiences of change, resource allocation and organizational culture.

The perspective and biases of the people leading change initiatives are also important to take into consideration. What kinds of mental models are colouring their own perspectives as they view the system and potential change? For example, a leader with a psychiatric or nursing background might see a system quite differently than somebody with a social work or counselling background. How might these perspectives affect plans for change? How might these perspectives lead to ‘self-fulfilling prophecies’ (both negatively and positively)? Ideally, change implementation teams<sup>2</sup> will be composed of individuals who bring various backgrounds and viewpoints to bear.

<sup>2</sup> [Systems Approach Workbook: Working with Teams to Support Change](#) describes different implementation team models and their application to suit different needs, processes and contexts.

### **Initial conditions will affect the outcome**

When considering a change in an organizational or social system it is critical to understand the current context in which an initiative is situated. This includes an understanding of internal factors such as organizational culture, relationships, perspectives, and the history and perceptions of change. External influences are also critical to take into consideration, such as political, social and funding climates. Collectively, these factors contribute to a sense of the system's readiness for change. The importance of this state is well understood by practitioners in the substance use field and has significant relevance in facilitating organizational change as well (see Prochaska's Transtheoretical Model of Behaviour Change). Interventions should be aligned with the level of readiness in the system. Understanding the current context is discussed throughout the [change management modules](#) of the Systems Approach Workbook. The workbook also provides a [context analysis template](#).

### **Nonlinear feedback loops**

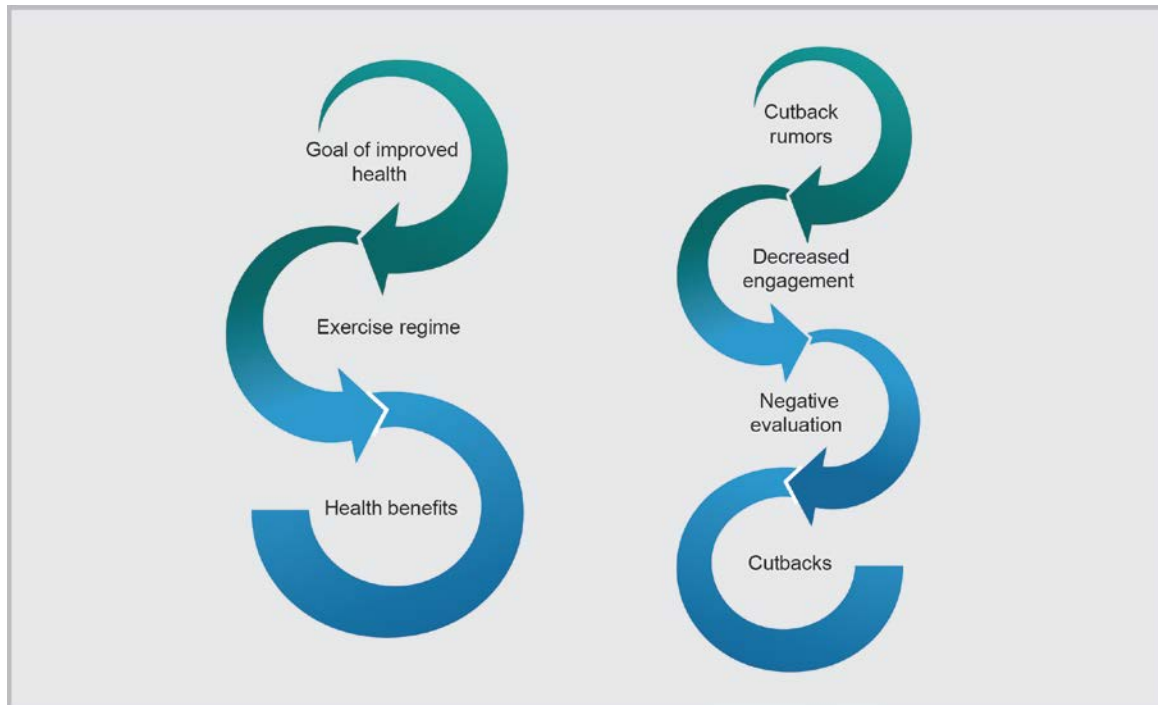
*All organizations are webs of nonlinear feedback loops connected to other people and organizations by webs of nonlinear feedback loops.  
~ Ralph Stacey*

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Newtonian cause-and-effect thinking, where flipping a switch results in a light turning on, is appropriate for some disciplines but does not translate well to human or biological contexts where the effect of one action becomes the cause of another. This effect-cause-effect scenario is understood as a nonlinear feedback loop. Systems involving people are neither linear nor one directional. De Wit and Meyer (2005) note that "all human interactions constitute nonlinear feedback loops because people under- and over-react. Since organizations are simply a vast web of feedback loops between people, they must be capable of chaotic, as well as stable and explosively unstable, behavior."

Feedback loops within a system may either be "reinforcing" a change or "balancing" (compensating) to seek equilibrium. Reinforcing loops are at work whenever change is occurring. Small actions snowball, creating much larger outcomes. This kind of self-reinforcing cycle can be either 'virtuous' or 'vicious'. Reinforcing loops can have positive (virtuous) effects, such as the benefits experienced from physical activity, resulting in an increased exercise regime that is reinforced by continued health benefits. Conversely, rumours of health spending cutbacks can create a negative (vicious) cycle. Assuming that a program will be cut shortly after implementation, staff do not buy in and the program is poorly implemented. Negative evaluation results follow and funding for the program is indeed cut.





Word of mouth is a powerful influence and can be a tipping point toward change. Thinking of social and organizational contexts, it therefore benefits leaders to pay attention to organizational gossip and water cooler conversations. In what direction is the momentum of change moving? Are people gaining or losing confidence in an initiative? Is there a sense of distress or inspiration? During times of impending cutbacks or reorganization, it is particularly important to keep in touch with staff as perceptions can snowball.

*The harder you push, the harder the system pushes back.*  
~ Peter Senge

A balancing system is seeking equilibrium, which may manifest as a resistance to change. As in a therapeutic relationship, it is important to watch for signs indicating whether change is being accepted and supported or rejected and resisted. If there are indications of resistance, it is important to understand the reasons for it. How resistance is handled matters a great deal as it will likely affect the overall outcomes of a change initiative and, if handled poorly, can create a whole new set of problems. This may be particularly true in substance use services where the nature of the work and histories of funding and structural changes can already contribute to a certain level of stress.

### **Time delays**

Senge (1990) cites a core learning dilemma that confronts organizations: “We learn best from experience but never directly experience the consequences of many of our most important decisions.” The impact of critical decisions in organizations will play out over years or even decades, making patterns and cycles particularly difficult to see and be able to learn from. Managers, directors and staff involved in implementing a new project have often moved on by the time the scope of impact is truly demonstrated. This delay makes learning by trial and error at the full system level particularly

challenging. Focused, “safe-fail”<sup>3</sup> trials provide more immediate results that can then be scaled up if appropriate.

A classic demonstration of not factoring in time delays is the common response to shortages of skilled personnel in a given field. These shortages can result in an enormous push to train large quantities of people, in turn resulting in a surplus of trained personnel without enough jobs, resulting in a reduction in training, resulting in another deficit of trained personnel down the road. This is akin to turning the thermostat up and down in your house without waiting for the temperature to stabilize before adjusting slightly.

[Working with Teams to Support Change](#) explains how different teams can support internal communications and the [Systems Approach Communications Tools](#) include customizable templates.

[Effective Leadership](#) in the [Systems Approach Workbook](#) provides guidance on leadership and communication strategies during change processes, as well as guidance on preventing and addressing resistance to change.

Leaders of change initiatives need to consider how long changes might take and be realistic about time frames. It is also important to identify ways of evaluating small changes along the way rather than simply relying on formal evaluations at the middle and end of a project. Subtle changes in attitudes, practices, behaviours and relationships can be significant indicators that are often overlooked.

## Assessing Levels of Complexity

Not all systems are complex. Systems vary from simple at one end of the spectrum to chaotic at the other. David Snowden, a leading author in the field, suggests that rather than using a ‘one-size-fits-all’ approach to decision making and action, leaders need to determine which domain of complexity they are making change within and then respond appropriately. Effective ways of approaching, evaluating, leading and changing systems differ according to the environment and degree of complexity.

In this section, two models are introduced to assist teams in recognizing levels of complexity and identifying appropriate responses. These particular models were chosen because they are easily understandable yet comprehensive enough to capture the complex contexts encountered in the mental health and substance use fields. Their frameworks lend themselves to interactive planning processes and decision making while also providing a solid foundation for developmental evaluation. The two models employ different relational factors but share a common terminology to describe the domains of complexity (simple, complicated, complex and chaotic). These domains have become common terms in organizational development, strategic planning and evaluation, and have strengthened organizational capacities to take a systems approach.

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<sup>3</sup> David Snowden explains “safe-fail” trials or probes as low-risk, quick experiments to test emerging possibilities or ideas. These probes must have observable outcomes and should be planned in a way that failure is an acceptable outcome that provides learning opportunities. For more information, see Snowden’s Cognitive Edge Network blog at <http://cognitive-edge.com/blog/entry/4090/safe-fail-probes/>.



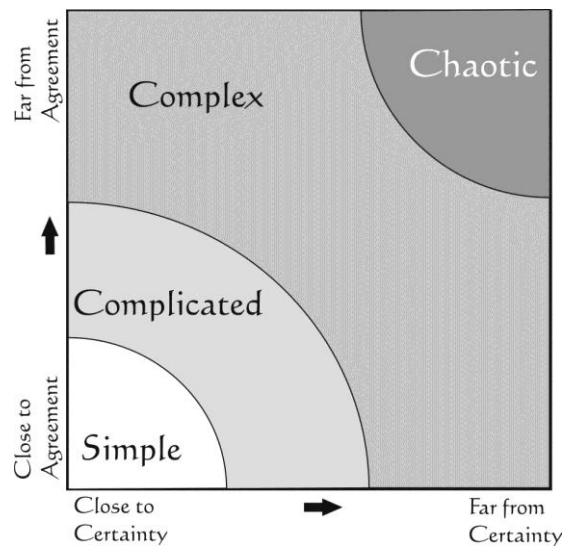
## Stacey's Agreement and Certainty Matrix

In the late 1990s, Ralph Stacey (1999) introduced a matrix to help organizations distinguish between simple, complicated, complex and chaotic situations. Establishing the groundwork on which other models have been developed, Stacey's model presents two main factors that contribute to complexity:

1. The degree of certainty for outcomes; and
2. The degree of agreement among decision-makers on the approach.

These two dimensions are illustrated in the graphic below.

**Figure 1. Stacey's Agreement and Certainty Matrix**



The domains at the intersection of the Certainty and Agreement axes are Simple, Complicated, Complex and Chaotic. The degree of certainty can be seen as the technical outcome while the degree of agreement illustrates the social consensus on whether to proceed (Quinn-Patton, 2011). For example, there is a high degree of certainty that methadone prescription is an effective way to reduce heroin use. Socially, however, there is not clear agreement on when and in what form methadone prescription should be available. It is important to note that an issue may be in the simple domain at one point in time but may shift in certainty or social agreement as new information and influences come into play, such as new research or clinical guidelines on best practices for methadone prescription.

As issues move further away from certainty and agreement, they shift into the complicated, complex and even chaotic realms. Although opinions vary about what chaos really means in this kind of model, there is general agreement that when a situation is in chaos nothing is certain, there is no discernible link between cause and effect, things are constantly changing and survival is the primary concern. Examples of this include economic meltdowns, riots and war. Since this type of state is rarely seen in organizational systems, the focus here will be primarily on the Simple, Complicated and Complex domains.

It is important to note that any given change initiative will likely involve components with various levels of complexity, as illustrated by the example in Table 1, in which an agency is initiating standardized intake processes across its services. The idea is to recognize the level of complexity and act accordingly, not to reduce complex issues to simple ones.

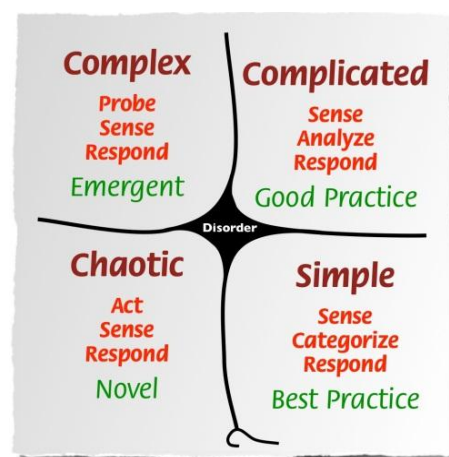
**Table 1. Example of a change initiative**

Domain	Initiative Activity	Dimensions of Complexity
<b>Simple</b>	Inputting client information from a paper form into a provincial database after it is collected.	High levels of certainty on the process for data input and agreement that data should be kept in the database.
<b>Complicated</b>	Working on a committee to decide what questions should be included on the initial intake form.	A lot of information available on questions that need to be asked. Differences in opinion on when, where and how best to ask the questions.
<b>Complex</b>	Piloting a draft version of the new form and processes.	Because not all staff agree that a standardized intake process will be suitable to the cultural diversity of their clientele, individual and service-level adherence to the new process may vary. Different agreements will have to be negotiated with each site based on the data collection requirements of various funders. Site location will also be influenced by provincial and regional political interests.

### Cynefin Model

In 2003, Snowden & Kurtz introduced the Cynefin Model as a framework for understanding and responding to different levels of complexity. The model is named after a Welsh word pronounced ku-nev-in, which “signifies the multiple factors in our environment and our experience that influence us in ways we can never understand” (Snowden & Boone, 2007). The model’s levels of complexity include the same domains outlined in Stacey’s model but are characterized by their relative cause-and-effect relationships. The Cynefin Model interprets these relationships and suggests the sequence of activities appropriate to the levels of complexity. Figure 2 provides a summary illustration of the model; Table 2 outlines suggested approaches and practices for each level of complexity.

**Figure 2. Snowden’s Cynefin Model**



In the Cynefin Model, an issue resides in the Simple domain when it has clearly identifiable, linear cause-and-effect characteristics. A situation is considered complicated when the cause-and-effect relationships are less easy to identify and require expertise and analysis. A system moves into complexity when conditions are unfamiliar or in flux, and when events are only predictable in hindsight.

In a complex case there is usually a variety of opinions on the possible options and a lack of consensus on the way forward. In the substance use service system, there are a great many stakeholders and philosophical approaches involved which add to the complexity. For example:


- Clients bring a collection of health, social and economic concerns that influence their ability to navigate the system, the types of services they require, and the impacts that those services have; and
- Organizational operations are influenced by client characteristics, personal and social philosophical approaches to treatment, research evidence, government or other funding requirements, and inter-agency partnerships.

The second column in Table 2 summarizes the suggested decision and action sequence (the approach) that corresponds to each of the levels. Notice that while in the simple and complicated domains ‘sensing’ what is happening is the first action, but as the complexity increases ‘experimentation’ is suggested as the first step (what Snowden refers to as safe-fail probes).

The third column identifies the kind of “practice” that makes sense in relation to the complexity level. Best practices, for example, are most relevant for the Simple domain because they relate to known contexts. A best practice is, by definition, a past practice. In contrast, a Complex context is far less predictable and so identifying and applying ‘emergent’ practices or innovation is what makes the most sense in these types of circumstances.

The final column in Table 2 indicates level of certainty of the outcome.

Table 2. The Cynefin Model

		Characteristics	Approach	Practices	Outcomes
Ordered Systems	Simple	<p><b>Cause → Effect</b> (KNOWN)</p> <p>Cause-and-effect relationships are basic, linear, clearly identifiable and can be determined in advance. Items in the simple domain allow for repeatable, “cookie cutter” procedures that will have the same result.</p> <p>(e.g., baking a cake, data input)</p>	<p><b>Sense:</b> See what is happening  <b>Categorize:</b> Figure out how it fits predetermined categories  <b>Respond:</b> Decide what to do</p> <p>(It is important not to be complacent in this domain as shifts in the context can flip this into a more complex or chaotic state.)</p>	<ul style="list-style-type: none"> <li>Use <b>best practices</b></li> <li>Use standard operating procedures</li> </ul> <p>There is one or only a few “right” answers.</p>	Are straightforward to determine and achieve
	Complicated	<p><b>Cause → → → Effect</b> (KNOWABLE)</p> <p>Cause-and-effect relationships exist but are not self-evident. It requires investigation, troubleshooting, analysis and expertise. Answer(s) are less obvious but do exist and are logical.</p> <p>(e.g., fixing a computer network, administering and scoring a screening and assessment tool)</p>	<p><b>Sense:</b> See what is happening  <b>Analyse:</b> Bring knowledge and expertise to bear on issue  <b>Respond:</b> As determined by above</p> <p>(This may be an iterative process.)</p>	<ul style="list-style-type: none"> <li>Use <b>good practices</b> (sometimes called “proven and promising practices” in health care)</li> </ul> <p>There may be more than one legitimate approach.</p>	Are possible with analysis and expertise
	Complex	<p><b>Cause  Effect</b> (UNKNOWABLE IN ADVANCE)</p> <p>Cause-and-effect relationships are so intertwined they are only evident in retrospect. Many known unknowns and unknown unknowns. There are feedback loops with no one right answer. This is the domain of complex, adaptive systems and innovation.</p> <p>(e.g., reducing poverty, raising a child)</p>	<p><b>Probe:</b> Experiment (safe-fail approach)  <b>Sense:</b> See what happens, watch for patterns  <b>Respond:</b> If experiment succeeds, amplify approach; if experiment starts to fail, dampen it</p> <p>(This may be an iterative process.)</p>	<ul style="list-style-type: none"> <li>Identify and use <b>emerging practices</b></li> </ul> <p>Use safe-fail approaches (i.e., test through piloting and experimentation)</p>	Are emergent
	Chaotic	<p><b>Cause ≠ Effect</b> (UNKNOWABLE EVER)</p> <p>Events move very quickly and there is no perceivable relationship between cause and effect. There is little time to think, high turbulence and many ‘in-the-moment’ decisions to be made.</p> <p>(e.g., managing during economic collapse, riots and natural disasters)</p>	<p><b>Act:</b> Do something, move to stabilize situation  <b>Sense:</b> What is needed to manage crisis  <b>Respond:</b> Many responses as required in the moment</p>	<ul style="list-style-type: none"> <li>Discover and use <b>novel practice</b></li> </ul> <p>This is not the realm where best practices apply. On-the-spot innovation is needed.</p>	Are uncertain

Based on Snowden & Kurtz (1999); Snowden & Boone (2007); Quinn Patton (2011).

Tom Peters (1992) made popular the phrase “ready, fire, aim,” an approach Michael Quinn Patton advocates in complex contexts noting that “detailed planning only works where you have a high degree of control and know what the critical factors are” (2011). These are not conditions common in complex, innovative environments where uncertainty is the norm. The following example illustrates how new priorities, funding challenges and staff resistance could all necessitate a re-think of the original plans.

**Example: Developing a learning strategy for implementing a trauma-informed approach**

An agency has reviewed the Systems Approach report, conducted a system mapping exercise, and found that the current system is unable to respond to the needs of clients with histories of trauma. The director has therefore decided to incorporate a trauma-informed approach throughout its substance use services.

The primary issue the implementation team identified as complex is the uptake and practice change following the trainings. The intended outcome goes beyond learning new concepts and skills to an actual shift in practice and continued knowledge development. The team recognizes training as one step in the implementation of a trauma-informed approach and is unsure about how best to support staff to integrate and apply their learning once initial training is complete.

The team brainstorms several possible safe-fail experiments, including:

1. Identification and support to practice champions in each site;
2. Support for a trauma-informed community of practice;
3. Development of dialogue questions for use at team meetings; and
4. Continued education opportunities at each site.

Using Snowden’s criteria of a small, safe-fail experiment (i.e., designed for quick feedback and observable outcomes), the team decides to combine elements from 1 and 3 in its list. Team members agree to choose a site that has demonstrated readiness to pilot an ongoing learning approach. A practice champion from the staff will work with a couple of clinicians who also took the training to identify some key dialogue points. Together they will use these points to facilitate a discussion on how people are applying what they learned in their training into their practice. They will collect feedback from staff at the end of each meeting on the process and what people are taking away and applying.

The team also identifies key observable changes that will indicate if its approach is making a difference as well as red flags to watch for. Frequently scheduled reviews help assess if this approach is making a difference and how it can be adjusted and enhanced. These meetings will also explore how to include other knowledge exchange approaches such as communities of practice, mentors and readily available resources.

## **Applying Complexity Theory in Planning System Change**

In situations that are highly changeable, Michael Quinn Patton promotes developing guiding principles, avoiding over-planning, moving into experimentation and paying attention to what happens, being ferocious about getting feedback, and learning by doing. Any ‘failures’ along the way are then incorporated by “fast learning and speedily moving on.” Quinn Patton acknowledges that “control freaks perish” in this kind of approach. However, there is an inherent messiness in implementing change in complex, emergent conditions. Being able to tolerate and navigate uncertainty is a critical skill for leaders in a complex environment. Implementation processes must allow for ongoing course corrections and adjustments to original plans.

### ***Mapping the system and exploring linkages and disconnects***

To be able to properly plan for changes in a system, leaders need to take time to understand as much as possible about its current design and functioning. A useful step in this process is to visualize all the services in some way. Substance use services and associated programs and agencies have complex structures, often in multiple locations with varying policies for admittance, discharge and referrals. At the same time, changes in management, staffing, policies and funding can alter how the system works. The complex, dynamic nature of the system can be challenging for administrators, service providers and particularly clients to navigate. A deeper look at how referral processes, scheduling, programming and policies align can facilitate a better understanding of the client’s experience of navigating the system. Mapping the system and its connections and gaps creates a foundational knowledge of system strengths and weaknesses—and provides an opportunity to build a shared vision of how services can optimally work together.

There are a variety of methods for mapping systems. Appendix A provides some examples that can be used in a workshop format. The Systems Approach Workbook also provides a number of guides and templates, including the [Context Analysis Template](#) and Mapping Substance Use Systems and Client Journeys Tool to support system planning and strengthen the continuum of services and supports.

### ***Identify key leverage points for change***

A key leverage point is one where a small amount of force causes a large movement. For example, improving an intake process can ensure people are accessing services that are matched to their needs and preferences—improving retention, completion and outcomes. The application of this principle in terms of organizational change is to notice where small, focused actions will lead to significant, sustainable improvements. To accurately identify leverage points, it is critical to understand the forces at play in a given context (for example, leadership, funding or resistance to change). Tools<sup>4</sup> such as Appreciative Inquiry, Five Whys and Fishbone Analysis are all excellent tools for identifying influences while Force Field Analysis, Decisional Balance and SWOT Analysis can assist in further exploring leverage points.

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<sup>4</sup> Links to these tools are located in the Available Resources at the end of this document.



### ***Consult and plan with key partners and allies***

As illustrated in the [Systems Approach Tiered Model](#), substance use services are nested amongst a network of allied professionals and community partners. Stakeholders, including clients, will have valuable perspectives on what is working, where there are disconnects and how services can be improved. Leaders engaged in change processes should take time to identify key constituents and allies and explore the optimum level for engaging them in a change initiative. Some parties will need to be highly involved all the way through while others should be consulted at key points of an initiative or may need only to be kept ‘in the loop’ at regular intervals. Processes such as outcome mapping are very useful for identifying partnerships and allies and how best to work with different stakeholders towards common goals. The brief on [effective leadership](#) in the Systems Approach Workbook also emphasizes the importance of engaging others in the consultation process.

### ***Match interventions to the level of complexity***

The Systems Approach identifies “matching” as one of its guiding concepts. From a client service perspective, this means ensuring a client is matched to services and supports whose intensity is appropriate to his or her needs and strengths. The same concept applies at the organizational level in terms of complexity. Taking the time to understand the context, its components and their relative complexity will go a long way in avoiding mismatched interventions and wasted time and resources when engaging in system change or new projects. The Situation Awareness Model and the Cynefin Model mentioned earlier are both valuable tools for exploring levels of complexity in an initiative.

### ***Anticipate intended and unintended consequences***

Whenever a change is contemplated there is the hope that explicit, planned goals will come to fruition; however, there is also the potential for unintended consequences to occur. These consequences can be positive or negative, and can occur alongside the intended impact of the project or in its place if that impact is not achieved. Table 3 below uses the example of co-location of mental health and substance use services in a new community health centre to illustrate these possibilities.

**Table 3. Planned and unintended impacts of co-located mental health and substance use services**

		Planned Impact	
		Positive	Negative
Unintended Impact	Positive	Referrals between mental health and substance use services increase as planned.  Those working in and accessing other community services located in the community centre report decreased stigmatization of substance use and mental health clients simply through interaction, therefore breaking down stereotypes.	Referrals between mental health and substance use services do not increase.  Client access of the two services individually increases as they feel the community centre setting is less stigmatizing than the previous hospital-based setting.
	Negative	Referrals between mental health and substance use services increase.  Referrals exceed capacity and client retention decreases with delays between referral and follow-up appointments.	Referrals between mental health and substance use services do not increase.  Substance use clients fear stigmatization as mental health clients and <i>vice versa</i> , resulting in decreased service attendance.

The properties of complex systems contribute to a certain level of “unknowability” with respect to how events will transpire when initiating organizational change. Leaders should anticipate that unknowable influences will influence change processes and that unintended consequences will occur. Leaders should therefore allow space to discuss, identify and address unintended impacts throughout a change or project lifespan. Activities<sup>5</sup> such as a Force Field Analysis, Decisional Balance, SWOT Analysis and Best-Worst Case Scenarios can facilitate discussion and exploration of unintended impacts.

Unintended consequences can emerge in three ways:

- A positive unintended outcome;
- A negative unintended outcome that accompanies the planned positive outcome; and
- When an initiative makes the problem worse and the outcome is the opposite of what was intended.

The pharmaceutical world offers many cases of unintended consequences. The drug Wellbutrin is an example of positive unintended outcome. Originally developed as an anti-depressant, it was accidentally found to also assist in managing nicotine withdrawal. In contrast, pharmaceuticals in the opiate family that were originally intended to replace morphine (e.g., heroin and OxyContin) with drugs that didn’t have such addictive qualities have led to considerable problems of their own. In summary, it is helpful for leaders to engage in dialogue and processes that encourage thinking about unintended consequences.

<sup>5</sup> Links to these tools are located in the Available Resources at the end of this document.

## Conclusion

Improving the accessibility, quality and range of substance use services and supports in Canada requires making system-level changes. Developing a comprehensive continuum of services and supports will involve working not only within the specialized substance use system but also with other health and social sectors, community organizations and jurisdictions.<sup>6</sup> Each component of the continuum brings its own unique—and generally complex—considerations to the change process. Recognizing the level of complexity in which these system changes and collaborations are taking place is an important step toward approaching them in a way that will be successful and sustainable, both at the individual project level and at the broad system level.

The considerations, tools and strategies outlined in this brief are provided to support the process of improving the accessibility, quality and range of services available for substance use through:

- Recognizing the complexity of the systems, organizations and partnerships involved;
- Understanding how that complexity affects the change or implementation process;
- Recognizing and developing strategies to build on system strengths and proactively address potential barriers; and
- Monitoring and responding to changes within the complex environment.

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<sup>6</sup> Cross-jurisdictional considerations include service partnerships with other provinces and federal departments responsible for service provision (e.g., Correctional Services Canada, the National Native Alcohol and Drug Abuse Program).

## Appendix A: Sample of Tools for Exploring System Linkages and Disconnects

The following activities can help illustrate where the system is responsive and well connected, and where there are opportunities capitalize on, strengthen and build new connections. The system mapping tool in the Systems Approach Workbook also includes a number of templates that can be used to illustrate components of a system.

1. Put all the services on a wall (one per sheet of paper or Post-It Note) and illustrate the connections between the services with different colours of yarn (e.g., green = frequent contact, yellow = occasional contact, no string = little or no contact). This graphic representation can be the starting place for rich discussions on the current status of connection and how things might be improved. It can also be useful for examining new linkages with community services and allied professionals. Questions such as, “who else could we be working with?” and “who else is involved with or could support our clients?” can lead to creative thinking and discussions on new alliances.
2. Take the example of a fictional client and imagine his or her path through the various services. Use a flipchart to track the client’s journey through the system and make notations on where there are challenges (e.g., referral and access issues, mismatched criteria between services, different philosophies on tolerance) You can add to the realism and complexity of this exercise by getting participants to brainstorm various situations that might occur during the journey and writing them on index cards that are drawn at intervals in the activity. This exercise can be very helpful in uncovering where the linkages and disconnects are in the system.
3. Ask all services to complete a questionnaire with specific questions on their services, including information on referral processes, philosophies, programs and schedules. Compile all the information into a complete package and provide it to all the services working in collaboration. This package can be used by staff as a referral reference as well as at leadership meetings to explore opportunities to strengthen the collaboration. Update the package regularly.

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## Additional Resources

### *Systems*

- Earl, S., Carden, F., & Smutylo, T. (2001). *Outcome mapping: Building learning and reflection into development programs*. Ottawa: International Development Research Centre.
- Jacksonson, W. (2003). *Systems thinking: Creative holism for managers*. West Sussex, England: John Wiley & Sons.
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- Snowden, D. (2010). The Cynefin Framework [video file]. Available at: <http://www.youtube.com/watch?v=N7oz366X0-8>.
- Williams, B., & Hummelbrunner, R. (2010). *Systems concepts in action: A practitioner's toolkit*. Palo Alto, CA: Stanford University Press.

### *Strategic planning activities*

- Art of Hosting: <http://www.artofhosting.org/home>.
- Appreciative Inquiry: <http://appreciativeinquiry.case.edu>.
- Decisional Balance: <http://www.careerchoiceguide.com/career-decision-test.html>;  
<http://motivationalinterview.net/clinical/decisionalbalance.pdf>.
- Fishbone Analysis: <http://www.moresteam.com/toolbox/fishbone-diagram.cfm>.
- Five Whys: <http://www.adb.org/Documents/Information/Knowledge-Solutions/The-Five-Whys-Technique.pdf>.
- Force Field Analysis: [http://www.mindtools.com/pages/article/newTED\\_06.htm](http://www.mindtools.com/pages/article/newTED_06.htm).
- Future Search: <http://www.futuresearch.net/method/whatis/index.cfm>.
- SWOT Analysis: [http://www.mindtools.com/pages/article/newTMC\\_05.htm](http://www.mindtools.com/pages/article/newTMC_05.htm);  
<http://www.youtube.com/watch?v=GNXYI10Po6A>.