Gaining systemic insight to strengthen economic development initiatives

Drawing on systems thinking and complexity theories to improve developmental impact

By Marcus Jenal

Dr. Shawn Cunningham

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Authors note

For the last 3 years Mesopartner has been purposefully experimenting with complexity and systems theories in our practice. Not only did we change our company logo and strapline based on our new learning, we started to dismantle and question almost every aspect of our instruments, tools and theories. This was a steep learning curve for us and for our key customers who agreed that we could embark on these serendipitous journeys together. While we still believe in bottom up development, we are wondering about how to achieve developmental change within the typical timelines and resource constraints that development projects often face.

This working paper provides a theoretical grounding for the work we have done in the last three years and will continue to do. We consider some definitions, ponder the implications and try to formulate some responses to some of the key challenges that systems and complexity theories confront us with in our field of bottom up economic development.

We see this paper as an input into a broader discussion with our close collaborators, our close clients, and the broader network that we form part of. We request that you send your comments to us, or that you contribute to the ongoing conversation on the Systemic-Insight.com website.

Shawn Cunningham

Marcus Jenal

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Introduction

In our work in international development we face different kinds of problems. Some are relatively easy to solve, some have proven difficult to tackle. Many problems persist even when we believe we have solved them. Matt Andrews and colleagues identify two distinct types of problems (Pritchett, Andrews & Woolcock, 2012). Firstly, problems of building physical stuff: schools, highways, irrigation canals, hospitals, etc. Secondly, problems of building the capabilities of the human systems, i.e. to produce the flows of improved services (learning in schools, water to farmers, cures for patients) that lead to desirable outcomes for citizens. To solve the second type of problems has proven to be much more difficult than the first. In our work in economic development, we are often confronted with the latter type of problems, the more difficult ones. This is largely due to the complexity of these problems. Human systems can in general be seen as complex systems. Indeed, markets are seen as classic examples of complex systems, with various stakeholders interacting, changing their behaviour, finding solutions to problems to produce the emergent phenomenon we call the economy (Newman, 2011).

So far, though, most problems, regardless whether simple or complex, have been approached with the same mindset. Approaches are guided by an understanding of linear, controllable, and measurable cause-and-effect relationships. Inputs and activities are transformed into outputs and outcomes in a seemingly predictable way. Some problems, like building physical infrastructure, can be approached with this logic. It is, however, inappropriate for complex problems. By ignoring the complexity of the situation, key aspects of a problem are systematically hidden from the formal tools and frameworks for managing programs. Projects have relied on ex-ante analyses of the situation based on which they developed a theory of change, often expressed in a log frame or other causal model. The implementation is only seen as replication of the blueprint laid out in the plan. Complex systems, in contrast, can only be understood when interacting with them. Hence, effective programming when facing complexity requires a shift in emphasis moving away from the traditional tools that rely on linear causality like the logframe. Based on complex systems research, new tools and approaches are emerging that are better adapted to tackle complex problems. Also, we need to move away from a heavy reliance on planning and ex-ante analysis towards an approach that is based on continuous adaptation through monitoring and learning (Jones, 2011).

This paper is intended as an introduction to complexity and to give guidance to practitioners in economic development on how to identify complex problems, and how to act accordingly. The first part of the paper focuses on the question of what complexity is and how we can identify it. The second part explores why a more differentiated and complexity sensitive approach makes a difference, and why development practitioners should try to understand this topic and its relevance to our work. In the third part, we introduce possible strategies that can be applied when facing complex problems. In the fourth part we discuss implications of the use of complexity theories for us and our clients and we share our approach to complex problems: the Systemic Insight Approach. This approach includes specific and concrete guidelines to plan, implement, and monitor and adapt development programs in complex systems. The final section before we conclude the paper discusses implications of complexity into our work in economic development activities.

What is complexity and how can we find it?

Complexity is more a way of thinking about the world than a new way of working with mathematical models.

Snowden and Boone (2007:63)

Complexity and complex systems

There are many different uses of the term complexity. We do not use complexity in the common use sense of 'something very intricate and complicated'. Rather, we use complexity in connection with the state and behavior of a system.

A system is made up of components – people, cells, molecules, or whatever – interconnected in a way that they produce their own pattern of behaviour over time. Meadows (2008) continue that systems have a purpose and a network or patterns of interaction between the components. Components can be agents[1] and the artifacts like the tools, objects and plans that they use. A system is separated from its surroundings by a boundary, although these boundaries do allow influences passing through. Boundaries are often conceptual and used to make systems more manageable when planning an intervention, for example by defining a specific cluster or sector as the system of intervention. This allows to position the companies of the cluster in the system and other companies outside of the system. There is also interaction happening between the system and its surroundings. Changes in policies can have effects on multiple sectors. Innovations in one sector can lead to changes in another sector as well. Furthermore, one might have to adapt the boundary according to new insights. In our practical experience we have seen failure both when boundaries are drawn too narrow or on the other extreme when a boundary is drawn to wide. In the end it is important to note that boundaries in economic systems are often socially constructed and that they are not “real”.

In our work in economic development, a system is most often constituted by various economic actors, organizations, and institutions. These actors can have both formal and informal interrelations. Interrelations are not only defined by monetary transaction and the exchange of goods and services. Also other types of connections can be relevant like the exchange of information and knowledge or connections based on social relations like family links, common political views, or ethnic or religious ties. Actors might simply co-exist within the same sector or region without hardly any connections, yet they are still connected indirectly through the common actors they have relations with. Through these connections with each other and through their actions the actors contribute to the development of a market system in the widest sense. Due to the importance of these connections, agents and their interrelations are often described as networks (Strogatz, 2001). Such interconnected systems are called complex systems. Generally, complex systems are associated with a large number of components which are strongly interconnected.

One can differentiate between two types of complex systems. In the first type, the individual actors in the system strictly follow predefined, simple rules, like birds flying in a flock or ants living in an ant colony. While the behavior of the individual components can be relatively

[1] We use the terms agents, actors, and stakeholders interchangeably.

simple, the collective actions of the components gives rise to complex, hard-to-predict, and changing patterns of behaviour of the whole. This can be observed for example in the vast ant empires that very effectively harvest the resources of their surroundings. This phenomenon is frequently referred to as *emergence.* Emergence signifies the creation of functionality from the bottom up through interacting agents that can only be found on the macroscopic level but not on the level of the individual agent.

In the second type of complex systems, the individual agents are not following predefined rules. Each actor has a specific strategy that shapes its individual behaviour, often called a *schema*. The actors are continuously adapting their schema. This adaptation is based on observation of their environment and on past patterns of success and failure, rather than on logical, definable rules. The actors have multiple identities and can fluidly switch between them without conscious thought. For example, a person can be a respected member of the community while at the same time pay bribes to government officials. In fact this means that the actors change their behaviour based on the system, which in turn – as it is constituted by the behaviours of the actors – is changing as a result. This is the reason why complex patterns can emerge out of rather simple systems consisting of actors that on the surface appear to be homogenous or aligned.

Complex systems of the second type are typically referred to as *complex adaptive systems* (CAS). Human interactions often constitute CAS. Humans are following their own reasoning according to the relevant context and situation. Furthermore, humans can, in certain circumstances, purposefully change the systems in which they operate to equilibrium states, in which the systems could be characterized as complicated rather than complex, in order to create predictable outcomes. Humans can also have certain values that are in conflict with other values without even being aware of this tension, so depending on the context they would prefer one set of values over another. For instance, a person could value honesty and then lie to protect a family member or a friend. Other agents in CAS can be computer programs that are programmed to learn based on the outcomes of their earlier behaviour and the behaviour of other program instances.

Complex adaptive systems exhibit a number of particularly important characteristics that influence the way we have to plan our interventions (Mitchell, 2009; Ramalingham, Jones, Reba & Young, 2008). Some of the main characteristics are:

- The interconnections, interactions, and interdependencies among the heterogeneous actors and artefacts in a complex system lead to **nonlinear effects**, minor changes can produce disproportionately major consequences. **Feedback loops** have a crucial influence on the dynamic of the system.
- The system has a **history**, and the past is integrated with the present, essentially because the actors' schemata **co-evolve** with one another and with the environment, and with the artefacts in the system.
- The interactions between the agents lead to **emerging properties** that can only be observed on the level of the whole system, not when looking at an individual. The agents' behaviour affects the system, while the systems behaviour affects the agents – another manifestation of co-evolution.
- **Solutions cannot be imposed**; rather, they arise from the circumstances; another expression of *emergence*. Therefore, in the context of complex systems, we talk about emerging practice instead of good or best practice.

- **As adaptive agents** react and adapt to the system and to each other, without a central power, they **self-organize** into functional units.
- **Complex systems are dispositional, not causal,** thus observed effects cannot be traced back to a single cause and interventions do not have a simple effect. The disposition of the system, which emerges through the interaction of the components, defines the direction of change in a system and, hence, the effect of an intervention. Observed effects are always modulated by the disposition of the system much more than they are caused by a particular intervention.
- Though a complex system may, in retrospect, appear to be ordered and predictable, **hindsight does not lead to foresight** because the external conditions and systems constantly change, and as a consequence;
- **complex adaptive systems are inherently hard to predict,** we do not know what will happen.
- Complex systems produce and use **information and signals** from both their internal and external environments. The agents all interpret information and signals, and through their responses they themselves generate new information and signals.

When is something complex?

In general, complex adaptive systems are systems that have a large number of components that interact and adapt or learn (Holland, 2006). One way to differentiate between situations that are simple, complicated, complex, or chaotic is the Cynefin framework developed by Dave Snowden (Snowden & Boone, 2007; Snowden & Kurtz, 2003), which uses the following characterisations for the different domains (Figure 1):

- **Simple contexts: the domain of best practice.** Simple contexts are characterized by clear and stable cause-and-effect relationships that are evident to everyone. The right answer is often self-evident and undisputed.

- **Complicated contexts: the domain of experts.** In complicated contexts, there might be more than one right answer. Although cause-and-effect relationships are clear, they are often not evident. Hence, analysis and expertise is needed to approach such situations. Based on the multiple possible solutions to a problem, we talk about ‘good practice’ rather than ‘best practice’ in this domain. In this domain we are often confronted with a need to set priorities or choose from different alternatives, hence in complicated domains we often deal with planning and sequencing actions.

- **Complex contexts: the domain of emergence.** In contrast to the complicated contexts, where at least one solution exists for a given problem, in complex situations, right answers have to emerge from within the context. Complex systems are in constant flow and instead of attempting to impose a course of action, project interventions must patiently allow the path forward to reveal itself. Here any plan should be seen as a work in progress. Previous experience in a different context could also make us blind for emerging warning signals.

- **Chaotic contexts: the domain of rapid response.** Chaotic situations are marked by high turbulences, cause-and-effect relationships are impossible to determine, and not manageable patterns exist. Interventions firstly need to establish some kind of order. Are there some patterns within the chaos that are simple or complicated that we can delegate?

We refrain from providing examples as what may seem simple in one context may be complex or complicated it another.

The simple and complicated domains are seen as the ordered domains, while the complex and chaotic domains are characterized as unordered. The fifth domain of Cynefin, the disordered domain, essentially contains all situations where there is disagreement or ignorance whether the context is simple, complicated, complex, or chaotic.

The Cynefin framework is essentially a sense-making framework. In a sense-making framework, the framework follows the data. In contrast, in a categorization framework, you start with the framework and then fill in the data. The Cynefin framework is ideally constructed around a collection of data points collected by the group that intends to use the framework. To decide in which domain a specific event falls, the team compares the event with events from the past that they used to construct the framework.

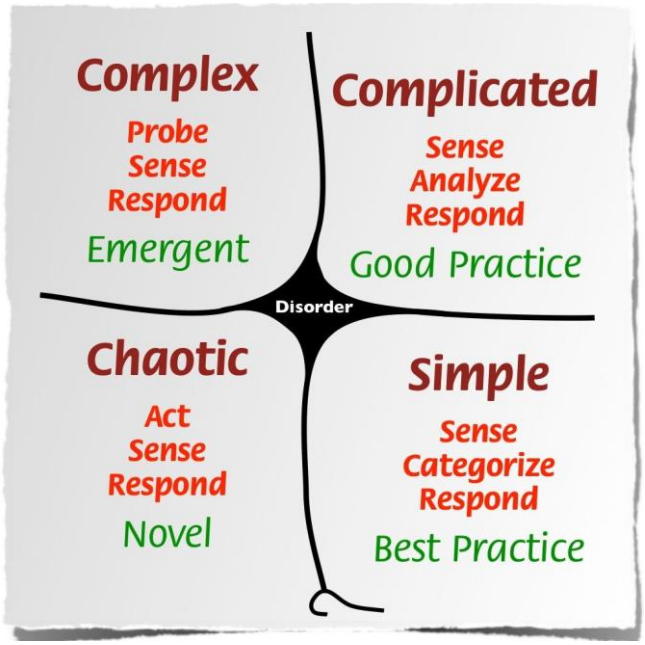

Figure 1 The Cynefin framework. Source: Wikipedia[2]

Hummelbrunner and Jones (2013) propose three dimensions when assessing the complexity of a situation:

- the level of certainty how the future unfolds,
- the agreement about possible ways to act, and
- the distributed capacities among the actors in the system.

Hence, one way to look at **simple** situations is as situation where there is **agreement on goals and ways to achieve them**, and certainty about the outcome; where one can rely on recipes or 'best practice' as the main ingredient for success. A popular example for this is a classical light switch, where there is a broad agreement that to turn on the light one has to turn the switch, which in turn leads to a predictable outcome. At the other hand, a **complex** situation is characterised by **high levels of uncertainty** – both about what solution to try and about the consequences of our action – and **disagreement about possible solutions**.

[2] Figure from http://en.wikipedia.org/wiki/File:Cynefin_framework_Feb_2011.jpeg

An example for this is the question how to raise a child. Every child is unique and previous experiences do not guarantee future success. There is not one correct way of raising children that have been proven to lead to a good outcome. As an additional determinant of complex systems, Hummelbrunner and Jones introduce **distributed capacities among the actors in the system**, which is distinct from certainty and agreement.

Consequently, in order to assess a given situation, the Hummelbrunner and Jones suggest taking the following steps:

1. **Assess the level of uncertainty**. There are two aspects to be considered. First, whether there is clear advance knowledge on how to achieve the desired outcomes in the given context or not. Secondly, whether the intervention's success depends on forces or trends about which there is little advance knowledge.
2. **Assess the level of agreement**. Assess the extent to which there is agreement or divergence among the stakeholders about the problem, about what to do (goals as well as the strategy to reach them) – or about both.
3. **Assess the distribution of knowledge and capacity**. Assess whether the capacities to tackle an issue are distributed across a range of interacting players and whether the success of our project/programme depends to a greater or lesser extent on the actions of others.

As a final remark it is important to note that **complexity does not equal randomness**. This can be illustrated when looking at the notion of constraints. In ordered systems (simple and complicated domain), the system constrains the agents. In chaotic systems, there are no constraints. In a complex system the agents and the system constrain one another, especially over time. As a consequence, we can still find order in situations where the constraints are stable, leading to an equilibrium that lasts over a longer time scale. These situations are called attractors. Tipping points that switch the system from one stable state to another, i.e. to a new attractor, can, however, not be predicted. Attractors themselves, at the same time, are not in any case just still, but can oscillate between two stages or even make unpredictable changes (then they are called strange attractors). Hence, the unpredictability of complex systems does not stem from randomness, but from the fact that the regularities it does have cannot be briefly assessed and described (Axelrod & Cohen, 2000; Gell-Mann, 1995).

Why a more differentiated and complexity sensitive approach makes a difference

The complexity of the world is real. We do not know how to make it disappear.

(Axelrod & Cohen, 2000:2)

Not all problems are complex. Even if we face a complex adaptive system like a market system, we still need to differentiate between simple, complicated, and complex problems within this system. The different types of problems need different strategies to approach them, and success is defined differently. The ability to differentiate between the different types of problems allows us to select an appropriate and adapted strategy.

Traditionally, the strategies adopted in international development, including economic development, were strongly based on the belief in the ability to predict what effect a specific project intervention will have. These predictions were based on information gained through pre-project assessment combined with past experiences, ideological preferences and organizational priorities. In this paradigm, one could clearly define unambiguous goals based on an idealized future, and plan and control the process of transforming inputs through activities into outputs, outcomes, and impacts. This approach works well for simple and some complicated problems and will also be invaluable in the future when facing these types of problems.

There are many examples where complexity of a situation was ignored. For instance, in value chain promotion, the emphasis is very often on the wellbeing of the poor farmers. A complexity insensitive diagnosis of a tomato value chain could easily conclude that the middlemen are evil, that the supermarkets are greedy and that the poor unproductive farmers need to be organised into a cooperative so that they can better exert their influence on input suppliers. Almost any intervention that treats this is a simple situation with some straight forward solutions will be surprised at how complex the situation really is. For instance, removing the middlemen could completely destroy information flows, and reduce the ability of small farmers to sell the little bit of excess crops that they produce. Or by deciding to re-allocate profits through regulation, many unintended consequences may occur.

The complexity of the human systems we interact with also has consequences for the way we measure impact of our change initiatives. As we have seen, in complex situations, there is often no consensus on what success would look like. Hence, the monitoring and impact assessment has to be able to follow a moving target of what we believe is a positive change. Furthermore, as there are no simple cause-and-effect relations in complex systems, we cannot just link the intended outcome with our interventions through linear cause-and-effect chains, as this is often done. Change in complex systems happens in much more intricate ways and a monitoring and impact assessment framework has to take this into account. How to measure change and particularly success of change initiatives in complex systems is still much debated. While there are initiatives that are developing principles of how to measure change in complex systems[3], there is a more fundamental debate going on whether the drive for evidence-based programming and policy development is actually compatible with and applicable to change processes in complex systems (see (Taylor, 2013)).

If we acknowledge that we do not know the consequences of our actions, nor the way a complex situation will develop in the future, the traditional approaches to designing an intervention fall short or might even had disastrous consequences (Axelrod & Cohen, 2000). One possibility to face this situation is to just to go ahead nevertheless and try the best to predict a possible future. There are always some predictions that turn out to be true. But there are usually many conflicting expert opinions in play. Due to the characteristics of complex systems, it is only possible to tell which prediction was right when or after it happened. Jumping into a situation and just starting with an intervention requires openness to experimentation and a learning-by-doing approach that is difficult for development organisations to manage and evaluate. However, many of the institutions in developing

[3] Mesopartner has been part of the Systemic M&E initiative led by the SEEP Network. For more information see here: http://seepnetwork.org/systemicme

countries largely rely on such an approach. Nevertheless, coming from the outside, an initial analysis of the system can give us some clues on its current situation, giving us a sense of direction for our change intervention, and allowing us to develop coherent pilots to probe the system.

A whole range of facilitation tools have evolved to try to look into the future, with many having their origins in organisational development and change management. One of these is scenario analysis. In scenarios analysis, we still need to identify the principal driving forces of a system and how they will affect the outcomes of interest. In complex systems, however, there are often no clear driving forces; the system is modulated by all the agents. Even a small action by an apparently marginal agent can change the path of the entire system. Hence, it is not possible to really understand how forces might interact in the future. When stakeholders treat these future visions as certain then they may become blind to other emerging trends. This difficulty of prediction does require a large shift in our tactics.

Another limitation of many of the facilitation tools dealing with the future is that most of them work extremely well within organisations, where there is a certain level of control over resources and systems. In societies and industries it is not so easy to set a direction or coordinate evolution into a particular direction. Nevertheless, a benefit of these forward looking instruments is that they make stakeholders aware that there are uncertainties ahead that require decisions now. Scenario planning can still be a useful tool, but it should not be seen as giving clarity of trends, rather awareness of where to look for change. Scenarios can also make people aware that the future may be affected by multiple known uncertainties having compounded effects.

Another tool that is trying to paint a picture about the future is the logical framework or logframe, which is often used in the planning of international development projects. The logframe tries to pack together neat causal chains about what effect a project's interventions will have and how they eventually will lead to the intended impact. Looking at the above-mentioned characteristics of a complex system, it becomes quickly clear that such a linear and over-simplifying tool does not add much value to a change initiative in a complex context. On the contrary, such planning tools often lead to projects that only replicate what is written in the plan an do not take into account anymore what is actually happening in reality[4].

Managing interventions in complex systems means constantly facing uncertainty in what works and how the system will change. But while we face uncertainty in complex systems, the systems may also have sufficient structure and permit improvement when using an adapted intervention strategy (Axelrod & Cohen, 2000). New approaches can help to effectively plan and work when facing uncertainty.

[4] For a more elaborate critique on the logical framework, see Hummelbrunner 2010 [Richard Hummelbrunner (2010). Beyond the logframe: Critique, Variations and Alternatives. In Nobuko Fujita (ed): Beyond Logframe; Using Systems Concepts in Evaluation. Issues and Prospects of Evaluations for International Development Series IV. FASiD.]

Strategies when facing complexity

As complex systems are not predictable they can only be known when we interact with them. Hence, the reliance on detailed pre-projects assessments followed by a rigid planning framework that does not allow for adaptation of the strategy will in most cases lead to disasters, rather than to the desired outcomes. Hence, the suggested strategies when facing complexity are all based on approaches that focus on learning and adaptation.

As a strategy in the complex domain of the Cynefin framework, Snowden and Boone (2007) propose to **probe** the system to make patterns or potential patterns visible. Probes are small-scale, safe-to-fail experiments that allow us to interact with the system and **sense** the emerging or existing patterns. We can then **respond** by further nurturing the patterns we like, for example if we see more inclusive behaviour of market actors. We can also destabilize patterns that we do not want, for example behaviour of market actors that do not follow the rules and destructively exploit opportunities we created. Similarly, Axelrod and Cohen (2000) suggest an evolutionary approach to solving complex problems following the principles of variation, interaction, and selection. **Variation** within a portfolio of possible interventions is a central requirement for adaptation. Variation makes sure that if some types of interventions are not working, there are other types that work. A variety of interventions makes sure that we are able to learn what works. Just having a portfolio of different does not allow us to determine which of the interventions work. There needs to be **interaction** with the system, leading to a particular outcome, desirable or not. Based on this outcome, we can go through a process of **selection** to determine which of the interventions to scale up.

Richard Hummelbrunner and Harry Jones (2013) propose approaches for interventions in complex systems that are based on the following three core principles:

- **Move from static to dynamic planning:** To face uncertainty of what effect our interventions will have, many of the tasks of planning need to become iterative and ongoing. Plans should be regarded as hypotheses and the usefulness of these hypotheses needs to be reviewed regularly in the light of experience and/or changes in context. Setting learning objectives may be as important as performance objectives, and interventions should be designed to actively test hypotheses.

- **Move from prescriptive to flexible planning modes:** As there is no clear view on what strategies might work when facing complexity, we need to use forms of planning that do not specify a single solution but identify a variety of options and cater for different possible outcomes. Evolutionary approaches, where interventions are based on experiments with a portfolio of possible solutions, helps us to develop and grow strategies based on learning and adaptation on the ground.

- **Move from comprehensive to diversified planning:** Plans should not try to capture every little detail of a proposed intervention. Planning cannot encompass everything. As we are faced with uncertainty, initial plans should be light and show the way on which most learning can be achieved. Planning should be decentralized, especially on an operational level in order to stimulate the self-organizing capacities of each individual level.

What is similar in all of these strategies is that they adopt an evolutionary approach to the unpredictability that we face in complex systems. In such an approach, we have to anticipate

that some of the pilot interventions that we use to test our hypotheses will fail. Failure is thereby not viewed as something negative that we need to avoid, but as an opportunity to learn and adapt our strategies. As a consequence, if we want to allow our pilots to fail, we need to design them in a way so their failure would not endanger the whole development project. Hence, they need to be small-scale. In order to determine if they are working, they need to be well monitored, and equipped with fast feedback loops that inform the project management on the achieved or not achieved outcomes.

Important questions that need to be answered when developing a strategy for a change initiative in a complex system are where, when and how knowledge and decision-making can best be linked (Jones, 2011):

- **Where** is the relevant decision making taking place? – In complex adaptive systems, **decentralized action and self-organization** need to be favoured.
- **When** do we gain important knowledge about action and when do crucial decisions need to be taken? – In complex adaptive systems, adaptive responses need to be prioritized and **space for interventions to be flexible to emerging lessons** built.
- **How** can fruitful decision making take place and what knowledge should be integrated? – In complex adaptive systems, an eclectic mix of sources of knowledge at many different levels and junctures needs to be taken into account, **negotiation between and synthesis of multiple perspectives** is necessary.

So where does this lead us in our everyday work? Snowden and Boone (2007) in their paper offer a number of guiding ideas to manage complex situations, which we adapted to economic development realities:

- **Open up the discussion.** Complex contexts require more interactive communication than any of the other domains. A variety of bottom-up participatory methods can be used to initiating democratic, interactive, multidirectional discussion sessions. Here, people generate innovative ideas that help leaders with development and execution of complex decisions and strategies.
- **Set barriers.** Barriers limit or delineate behaviour. Once the barriers are set, the system can self-regulate within those boundaries. Barriers in economic development can be for example rules for micro-credit schemes or a simple set of rules given to franchisees of an agricultural input company within which they can build up their businesses. An international retailer expanding its supply chain into an emerging market is setting barriers in the form of strict entry requirements, but there are global opportunities for those that can keep up with the steep development curve.
- **Encourage dissent and diversity.** Dissent and formal debate are valuable communication assets in complex contexts because they encourage the emergence of well-forged patterns and ideas. Especially in development, many participatory tools are actually trying to avoid dissent and work towards convergence of ideas. This is often severely limiting the number of solutions we are exploring.
- **Stimulate attractors.** Attractors are phenomena that arise when small stimuli and probes (whether from leaders or others) resonate with people. As attractors gain

momentum, they provide structure and coherence. In the example of micro-credits, the micro-loans work as an attractor for people in a community to self-organize. Equally, a really good middle management course offered by a technical university can become an attractor for innovation.

- **Manage starting conditions and monitor for emergence.** Because outcomes are unpredictable in a complex context, managers of change initiatives need to focus on creating an environment from which good things can emerge, rather than trying to bring about predetermined results and possibly missing opportunities that arise unexpectedly. This is again strongly at odds with traditional results oriented planning tools like the logframe and the more recent impact and result chains.

The first point clearly points out that participation still is a very important part of every development project that really wants to make a difference. In the end we have to be aware that it is not us that are changing the system, but we are merely working to enable the system to evolve towards a more favourable state.

For all these points it is important to recall that we cannot predict what effect such interventions will have in a complex context. If we take the example of setting barriers, they might actually have an adverse effect on the system, instead of a beneficial one. Thus, it is important to start small and probe the system with pilots to see what patterns emerge.

We need to recognize that in complex situations we always have to look for things that work or try to start small pilots and see whether they work and amplify them. These can become attractors for other actors.

If we embrace the fact that in complex systems agents make decisions in a decentralised way, and that their decisions could be based on incorrect information or wrong assumptions, then it becomes necessary to consider how information flows within the system. When the costs of gaining sufficient information to make better informed decisions are too high, systems of agents can make the wrong decisions. As development practitioners we have to see whether there are any social or public institutions that can play a role in supporting better information flows so that agents can make decisions with better information at their disposal.

Implications for Mesopartner and our clients: gaining Systemic Insight

1. One of the major implications for Mesopartner, our collaborators and our clients is that we have to be more rigorous in assessing whether a situation is simple, complicated, complex or chaotic. This will immediately affect both our intervention and approach, but also the duration of a sensible engagement. For instance, a rapid appraisal followed by some interventions in an area where there is a lot of uncertainty will not yield good results, as it may treat a very complex situation as simple. At the same time we have to acknowledge that even in a complex situation there may be certain issues that are rather simple. In future, Mesopartner will in its recommendations and internvention design work harder at making a distinction between activities and contexts that appear to be simple, complicated, complex or even chaotic.

2. As we noted in the introduction to this paper, markets can in general be classified as complex adaptive systems. Hence, a second implication is that we have to use much more of our consulting instruments to assist programme managers to adjust existing programmes to our evolving understanding of complexity. One such instrument is an approach developed by Mesopartner called Systemic Insight (Cunningham & Jenal, 2013). The Systemic Insight approach guides organizations and practitioners through a whole cycle of a change initiative and can be applied in all different fields of economic development. To explain the Systemic Insight Approach, we use the metaphor of a spiral. We acknowledge that even a spiral is still a linear approach, even if it has many feedback loops[5]. But just like in telling a story, you have to start somewhere and then progress based on what you perceive or need to achieve.

The spiral is helpful to illustrate the progression of project planning, implementation, and monitoring. At certain moments it will force a team to confront their limitations in understanding the system. At each of the points it will challenge the way a typical development intervention, e.g. in a value chain diagnosis, unfolds. In the illustration of the spiral, an initiative emanates from a central point, getting progressively farther away as it revolves around the point. This distance from the central point is not created by following the steps, but by making decisions and learning from the feedback from the system. Translated into the dynamics in a project, this means that understanding of the situation increases, and as it increases, decisions about how to proceed are made based on past decisions and on new insights. We want practitioners to be more aware of the decisions they make during this process as each choice (about who to see, about where to start, etc) affects the outcomes and the future choices that can be made. A spiral also signals iteration, with planning (or response) going more and more into details as the dynamics of the system are revealed and better understood. Based on the spiral, the Systemic Insight Approach proposes five phases: hypothesis, analysis, sensemaking, strategy, and intervention. Additionally, learning and adjusting are integrating elements throughout all phases. We chose the word “phase” to highlight that these different points in the spiral signify a change of focus, perhaps a change of intensity or perhaps a different mode of working, in contrast to a sequence of distinct steps.

3. In our work, we realised that while many programmes are able to develop failsafe projects and learning processes in the simple and the complicated domains, many clients need support to use more experimental and adaptive approaches to develop their interventions, including the development of a portfolio of safe-to-fail experiments. While knowledge transfer from other places is quite common in development (using failsafe project management), assisting local systems to evolve faster by creating safe-to-fail experiments based on local and contextual knowledge is not so common. A third implication is, hence, that assisting change initiatives to experiment in a safe way could be one of the biggest contributions of technical assistance to developing countries.

4. A fourth implication is that especially donor driven initiatives need to reflect on their methodologies for planning and reporting. As we could see, traditional planning, monitoring, and impact measurement instruments are often not well-adapted to complex contexts. Still,

[5]We have to acknowledged that most development programmes and interventions unfold in a linear way. So we have to work with the given constraints of the system. Therefore we propose a spiral that allows for a programme or intervention design to be unpacked sequentially, with strong feedback loops, as understanding of a given situation unfolds.

these tools dominate the international development industry, coupled with a still strong demand for results-based project management. The paradigm shift towards adaptive and evolutionary approaches to solve complex problems has not yet reached the decision makers in international aid agencies.

5. Some contexts may simply be too complex for a given programmes resources, capacity and mandate. We foresee programmes starting a process (for instance based on demand from a local counterpart), only to find that the situation is simply too complex for the programme to intervene in. Under these circumstances a development programme should opt to assist local counterparts to develop a portfolio of safe-to-fail experiments, as often local stakeholders are hesitant to try things that they are sure will fail based on their previous experiences. If the local counterpart is not willing to accept this proposal then we propose that development programmes opt for a “graceful exit”.

Conclusion

Many of our clients love methodologies and tools that are easy to replicate, and Mesopartner has built a reputation as a knowledge partner with several toolkits that are easy and simple to use. As Mesopartner we have realised that many of our popular instruments must be classified as useful analytical instruments that are strong in the ordered (simple and complicated) domains, where the main priority is to classify and prioritise interventions. These instruments will remain powerful, but will need to be complemented with principles and tools on how to intervene in complex systems that typically require a portfolio of smaller experiments to figure out what is viable. We hope that this paper and the Systemic Insight approach are a first step into this direction.

A consequence for us is that for many years our message was “economic development is really simple”. We literally told people to trust the instruments. The truth is it often worked this way, especially in the simpler and slightly more complicated environments, but mainly when we had an ideal combination of an experienced external facilitator combined with a strong local team that had a deeper insight into the local complexities. But as societies are complex it takes time to adjust the purpose and the behaviour of a system. To support economies to prosper at scale in the long run, we need to adopt the new paradigm of complexity.

At the same time we also need to understand the limitations of our own interventions and the strong biases in our own perspectives and values. Now more than ever we realise that Mesopartner’s bottom up perspective is really valuable as it supports decentralised decision making in complex systems. Perhaps it was never about the simplicity of the instruments, but about a strong bottom up system perspective, combined with a focus on changing what we can based on three simple criteria a) we have access and control over the resources, b) the change intervention is easy to explain to others, c) we can start very soon. But we also realise that to support social change takes time as we often do not have the power nor legitimacy to change one of the strongest levers in complex systems, those of the purpose and rules of the system.

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