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Designing and monitoring change initiatives to tackle complex problems

When tasked with designing and monitoring change initiatives in complex contexts, we are facing particular challenges that we cannot tackle with conventional approaches. Traditional approaches to project design and monitoring are based on the premise that we can predict a pathway of change that starts with the intervention of the project and follows a clear line of cause and effect until the change eventually reaches the goal level. Consequently, projects are designed around a

“theory of change”, often expressed in the form of a logframe, results chains or other linear² causal models. Key performance indicators are then defined for different stages of the causal chain and measured periodically to see how the project is doing. While

² The term ‘linear’ is used here in the sense of a sequence (A -> B -> C) rather than in the mathematical sense contrasting exponential.



many practitioners see the limitations of these causal models and try to amend their theories to make them more useful in complex settings, they still cling to the idea that there are clear causal reactions that can be started by the project and the subsequent changes can be attributed back to the project. While we recognise that a project can start a reaction of change and that there are many projects out there that have had a very positive impact, change in a complex system does not happen along an evident

line of causality, nor is the project – or anybody else in the system for that matter – the sole driver of this change.

Why? When tackling complex problems, the simplistic concept of linear causality does not apply. In the complex domain (see “Complexity – what’s the fuss?”), causalities are not clearly discernible, nor are they stable. Every action is influenced by many different factors, and not driven by a single driver



assuming single, billiard-ball-like causality. If an action B were driven by a driver A, changing A should have a predictable effect on B. In complex situations, however, many other forces influence the reaction of B to changes in A in non-repeatable ways. When, for example, an entrepreneur takes a decision about his/her business strategy, this decision is influenced by many different factors, such as his/her financial situation, his/her social environment, political considerations, etc.³ The decision is most likely also influenced by the behaviour of the entrepreneur's peers. Hence one action influences other actions. So



rather than understanding change as an individual big force that drives decisions and behaviours in the way that the cue ball drives another billiard ball, in complex systems many forces are at work, modulating the disposition of the system from which change emerges. But wait, what does that mean? And what is the consequence for our understanding of causality?

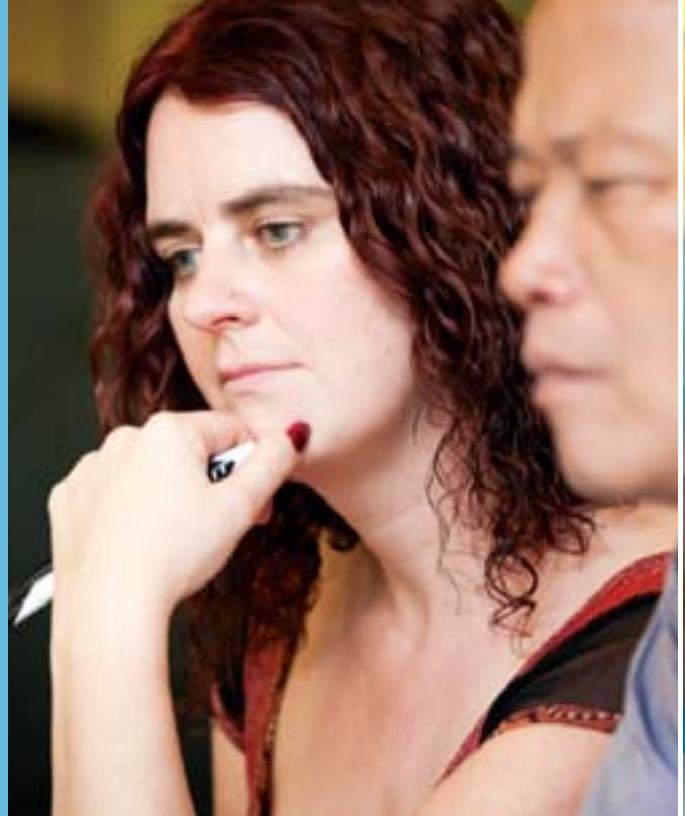
³ Even if in some cases it seems as if one particular factor or event shaped a decision, how a person decides is also strongly dependent on how this person got into this situation. Hence all the factors that influenced the person in the past also influence the person's decision in the present. The fact that history matters in complex systems makes discerning causality in these types of systems even trickier.

First, when looking at complex systems, it is more helpful to see influencing forces in such a system as modulators rather than drivers of change.⁴ Understanding what modulators are in play will help us to understand the behaviour of the various actors in the system. Second, the different modulators give the system a certain disposition for change, i.e. a tendency or propensity to move in a particular direction. It is therefore better to think about the disposition for change of a complex system, rather than about the causality of change. It is not one cause that leads to a particular change, but the disposition of the system that allows (or not) the change to happen.



Our intervention should consequently not be seen as the cause of a change, but as part of the chorus of different forces that together modulate the disposition of a system to change towards a state that is more

⁴ Read more about the concept of modulators vs. drivers here: <http://cognitive-edge.com/blog/entry/3199/drivers-and-modulators>



desirable to us. In other words, real systemic change happens when we can influence the evolutionary path of a system. This, in turn, ensures that our intervention is sustainable and reaches scale by touching upon the whole system.

A project intervention is just one modulator of many. In fact, even if we spend a lot of time analysing a complex system, for example a specific economic sector in a country, we cannot know all the influencing factors and how the dynamics of their interactions will play out. We cannot predict how our intervention will influence the disposition of the system. Hence we should not try to make a project a driver for



a particular change. Rather, the consequence of complexity thinking for the design of a project is to develop a portfolio of different interventions that try to probe and influence the disposition of the system from different angles. Probing in this context means interacting with the system to see what works and how the actors react, i.e. experimenting with different ideas. We must see our role as supporting or injecting novelty into the system, so that the system itself can have more possibilities from which to evolve. We should consequently not develop an elaborate and consistent theory of change for the whole project, but every intervention should be based on a “micro-hypothesis” about the disposition of the system that will be tested. Each intervention should have a consistent logic in itself, but the overall portfolio of interventions should be as diverse as possible.

Ideally, a portfolio of probes would test for contradicting hypotheses, widening the solution space



we explore. In essence this means that we learn about what works, what doesn't work, and what is possible or plausible. We thus increase options and learning within the system. The probes have to be designed in a safe-to-fail way as some will inevitably fail. Safe-to-fail experiments must be designed such that as few

resources or reputations as possible are damaged if an experiment does not deliver the desired results. Failing probes are at least as important as working probes, as they also provide opportunities for learning. In this approach, we mimic real life in that our valuable experience develops during the process of change, and is not based on an ex-ante assumption about what would be relevant, valuable and worthy of recording.

What is the consequence for monitoring? We cannot only build causal chains and use key performance indicators along these chains for the monitoring of a systemic change initiative. Causal chains might help us to think through the coherence of individual interventions or probes. For the initiative as a whole, we additionally need a wider network of sensors that can detect changing patterns in the system beyond

our causal chains. Furthermore, we need to be able to pick up these changes early, when they are still weak signals and would be overlooked by conventional monitoring systems that focus on the average. This sensor network can also help us to determine the disposition of the system and how this disposition is changing over time. Another aim is to find other modulators, such as powerful actors in the system, and see if we can directly influence them. If we like the disposition of the system and the direction of change it is taking, we can strengthen our efforts towards this change, and if we don't like it, we need to dampen these efforts. It also becomes clear that real-time data is critical and has to be directly fed into management decisions. A project's reaction to this information needs to be flexible and agile.

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