

Working Paper

Creating robust evidence through Knowledge Integration

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1. Challenging times, challenging issues

As experienced by many, the world is growing more complex. More and more, the important questions to be solved by societies cannot be answered by thinking in clear-cut good or bad responses. The territory is increasingly unfamiliar and the outcomes of all but the simplest interventions are impossible to predict. Addressing, intervening in, let alone managing of societal change, are becoming processes with a high degree of complexity. Outlines of the challenges are not clear, can change in yet unknown ways, and furthermore influence each other in visible and invisible ways, within timeframes that may still be unknown. Nevertheless, while the outlines of challenges or solutions may not be clear, there are approaches that already past the pilot phase that can efficiently deliver a probable solution. One of these approaches is Knowledge Integration.¹

Simply said, Knowledge Integration (KI) is the process of creating a common model or representation of a subject by bringing together knowledge coming from different perspectives and parties. It does so by focusing on synthesizing the understanding of that subject from different perspectives.

Increasing the variety of perspectives has proven to deliver more sound knowledge. This is equally true for profit-oriented businesses as well as for governmental or civil society organisations looking for other horizons. Hence, by bringing together knowledge from different sources, KI can produce data and information that can withstand scrutiny by different stakeholders. Scrutiny not merely of the data and information, but also of the

The Centre for Development Innovation (CDI), Wageningen UR focuses on the global challenges of secure & healthy food, sustainable markets, adaptive agriculture, ecosystem governance and conflict, disaster & reconstruction. By linking research and practice, we support the creation of new business models, forms of governance and policy, and partnerships for change that balance the needs of people, planet and profit in a rapidly changing world. In this Working Paper *Creating robust evidence through Knowledge Integration* we share our thinking and experiences to help facilitate innovation, create capacities for change and broker knowledge. It is the coming together of two strands of work undertaken by the author in the recent past: how to bridge the knowledge divides between policy-makers, scientists and practitioners; and how to set up Monitoring and Evaluation systems in organisations pressed to fulfil a multitude of demands. The first strand relates to the question of how to co-create the knowledge needed to address thorny or wicked issues in multi-stakeholder settings (Ho, 2011). The second strand relates to the quest of organisations to remain faithful to their values and vision while responding to the increasingly imperious calls for evidence of the effectiveness of their work.

This paper outlines a theory-based process of knowledge integration in which robust evidence is a natural outcome of purposefully sequenced multi-stakeholder interactions.

¹ Knowledge Integration is preferred to Knowledge Co-Creation as the latter relates more to developments in the business sector such as value co-creation, user-driven innovation, co-production with consumers. See also: Ho, 2011.

way they have been produced.² This is essential with societal challenges where besides soundness and accuracy, credibility of the knowledge produced is a fundamental asset.

So, what are the principles and approaches of Knowledge Integration, and how can KI be linked to other elusive processes, such as organisational learning, for it to contribute to the creation of more robust evidence? This note deals with these two questions by outlining first some key principles for knowledge integration (section 2), before describing the steps and loops of a general KI process.

KI may still be unfamiliar, but the methods and instruments used in KI approaches have passed through various cycles of try-out, albeit not always in similar combinations or in the same sector.

Various handbooks are available that provide guidance to the usage of methods and tools. Examples are conflict resolution tools, meta-reviews or participatory appraisal methods. Using these endows a KI process with tried and tested stepping stones. It allows one to concentrate on the more unfamiliar aspects of KI, often lumped under 'fingerspitzengefühl' or gut feeling. The unpacking of these aspects is the topic of section 3 of this note: the logic of how to lay out those stepping stones in order to create more robust evidence in a complex situation.

2. Some key principles for a Knowledge Integration process

Key principles

Combining as a must-have skill

Increasing diversity of perspectives and insights is one proven way to strengthen validity and credibility of knowledge produced. However, the art of combining does not end with synthesising the different perspectives on a certain subject. Key to successfully dealing with complex interventions and situations is setting up purposeful combinations of other variables³ notably methods, disciplines, intervention levels and stakeholders along with the wisdom of knowing when to adjust a particular mixture.

² This is sometimes called socially robust knowledge.

³ This is repeatedly mentioned in the literature, for example, Regeer and Bunders, 2009; and the 3M approach (<http://www.grpi.org/mdo.php>). The former also provides an overview of different methods. Both sources provide some detailed guidance how to go about this.

Crossing boundaries

With the increasing complexity of issues at hand and the resulting need for knowledge of different kinds and from different sources, multi-party working practices such as collaboration, alliance-building, networking, and interactive platforms, gain importance. With these, ways to bridge differences, manage tensions and connect the different parties involved take centre stage. *Boundary work* refers to activities designed to do just that: smooth the way in inter-organisational dynamics. A strategy meeting bringing different stakeholders together to discuss what elements should be part of a shared strategy is one example of a boundary activity. *Boundary actors* are organisations or individuals with the skills and language to connect different parties. A facilitator trained in managing differences (e.g. in discipline, culture, interests, power bases) between stakeholders, can act as a boundary actor. *Boundary objects* are objects that are accepted as valid and legitimate across the involved parties. Examples are a jointly created protocol or a map. All three, boundary work, actors and objects, help to make boundaries between stakeholders less definite, more fluid, and easier to cross and bridge. They therefore contribute greatly to the success of knowledge integration processes. KI processes by definition involve multiple actors. In consequence, with KI there is an explicit need to invest in boundary work, actors and objects, and be mindful at every stage of how to use and combine them. One important skill has to accompany this emphasis on crossing and bridging boundaries: the skill to discern, among others, the relative weight of differences and their changing nature.

Deal explicitly with power relations

Knowledge is closely related to power relations (Hivos, 2012). The link between power and knowledge determines not only whose knowledge is in the market, but also whose knowledge silently goes missing. Awareness of power issues is therefore important for knowledge integration as, apart from anything else, they may negatively influence the robustness of knowledge produced (see section 3). Strategies may be needed from the onset to deal with the often large (and often hidden) asymmetries of power felt by stakeholders. In particular, marginalised groups may need support to become involved (co-)managers of impending change processes. This entails going beyond so-called participatory activities where, for example, participants are requested to gather or provide information. Experiences have shown that linking knowledge interventions with empowerment strategies to 'level the playing field' leads to greater chances of success, as approaches use a richer knowledge base.

Let the path emerge

Knowledge integration approaches are complex interventions: they do not offer a protocol, yet, as mentioned earlier, require responding to emerging situations by combining, among others, methods, intervention levels and stakeholders. These combinations are moreover not fixed over time, but will need to change during the process. Additionally, KI approaches are used in complex situations, where multiple actors are to address an issue which relates to more than one discipline. In such cases, complexity theory highlights the importance of following an emergent approach in design and implementation. Simply stated, instead of attempting to impose and follow through a pre-designed course of action, an emergent approach adjusts the course of action as the path to a goal gradually reveals itself. Beware: this does not imply a 'do as you like' or a 'laissez faire' approach. An emergent approach is characterised by, after a light scan, probing first, next making sense of the effects, and then, based on that, responding to emerging patterns by adjusting or zooming in and probing further. Undertaking these steps purposefully distinguishes it from a laissez-faire approach. Taking these steps in a transparent and systematic way increases the robustness of both the process and the products to which it leads. How to undertake this tightrope walk of phasing a KI process without falling into the trap of prescribing next steps is the topic of the following section (section 3).

3. Knowledge Integration for evidence: the art of creating one out of two helixes

As mentioned in section 1, an emergent KI process consists of purposefully combining and recombining known and unknown elements. It is important to underline that despite these unknown elements, even an emergent KI approach can follow a deliberate sequencing. In fact, this deliberate sequencing helps unpacking and sorting out the different components of the unknown. Contrary to a laissez-faire approach, here sequencing takes place in an intelligent, intentional way. To achieve this, two helixes that draw from different theoretical streams are merged together to design and monitor phases of KI processes:

1. The organisational learning helix: Single-, and double-loop learning processes;
2. The organisational change helix: Freeze-rebalance-unfreeze.

The word 'helix' is used here to describe a winding process that progresses through steps that may feel



alike, but that do not lead to a same returning point. This distinguishes it from a cycle or circle. A helix is hence made up by steps that are sequenced together into non-overlapping windings. The next paragraphs first deal with the steps in the organisational learning helix and with those in the organisational change helix, before merging the two helixes together to create windings that form one purposefully sequenced and theory-rooted KI process.

The organisational learning helix: single- and double-loop learning processes

The single- and double-loop learning model⁴ had and still has a great impact on the thinking on learning. In this model two types of learning are distinguished.

In *single-loop learning*, individuals, groups or organizations modify their actions according to the difference between expected and obtained outputs. Questions that typify single-loop learning are: 'Have we done what we planned to do, and did that go well?' Single-loop learning relates to the level of results or outputs based on *doing things right*.

Sometimes however, this may result in doing the wrong things right. In *double-loop learning* this is addressed by questioning, analysing and modifying the values, assumptions and policies that led to the actions in the first place. It relates to the much deeper questions of 'Is it okay what we planned to do, and why?', based on *doing the right things*. Double-loop learning is therefore

⁴ This working paper focuses on the terms, first coined by Argyris and Schön (1978), of first- and second-loop learning. Conceptualisations of triple-loop learning are not included here. Practical explanations of first- and second-loop learning can be found on many websites, including <https://sites.google.com/site/reflection4learning/double-loop-learning>

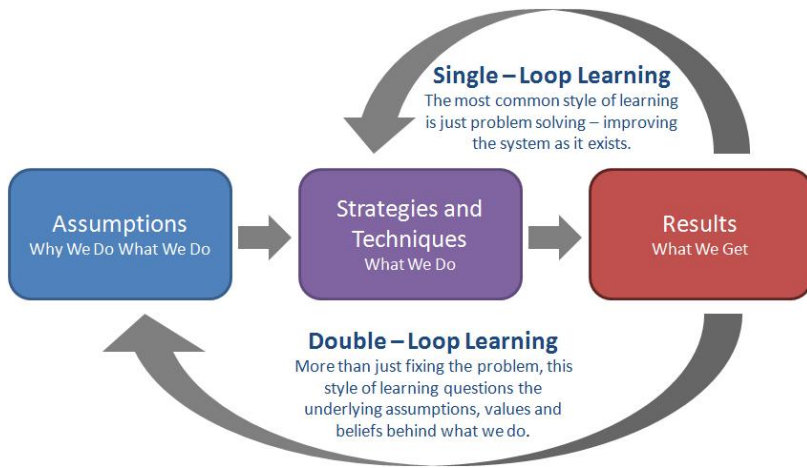


Figure 1: a visual representation of single- and double-loop learning (source: www.selfleadership.com, consulted 16th June 2012)

learning about the validity of what underpins single-loop learning. Single- and double-loop learning complement each other.

A helix where the windings are composed of single- and double-loop learning steps can be constructed as follows (see also figure 1).

- a. Single-loop learning:
 - i. A first step focuses on piloting: based on previous experiences or ideas, we try something out. A simple corresponding intervention theory⁵ is ‘if we do A, B will happen’.
 - ii. A second step then aims to identify and incorporate lessons to strengthen theoretical understandings: we look at what happened followed by a reformulation or further concretisation of the intervention theory based on what we learnt from solving the problems encountered. The refined intervention theory becomes ‘if we do A and A1, then B will happen’ or ‘if we do A and avoid A2, B will happen’.
 - iii. A third step improves practice by incorporating these lessons.
- b. Double-loop learning: by looking up from our project, we can question what we are doing. It is important to become aware of the narrow ‘reality’ of that one particular project. Questions related to a double-loop intervention theory are ‘should we be doing A?’ or ‘Is it just to aim for B?’ Meta-studies are an example of ‘looking up’. Comparative analyses of programmes

⁵ Note that the term ‘theory’ is here used as an idea or explanation, that may or may not yet be (partially) proven, but which takes into consideration earlier explanations and lessons learnt so far. By making these thoughts or ideas explicit, a theory can justify and guide action in a practical way.

across countries are other examples.⁶ They present ways to identify generic influencing factors or formulate generic principles. Comparing intervention approaches at the meta-level can also lead to more general frameworks which can then guide towards best practice.

By knowing more about the nature of learning and aim for an intentional interweaving of single- and double-loop learning processes, a helix of organisational learning can be created. The helix closely connects learning with action, because it alternately injects moments of identifying, explaining and incorporating learning in the action (practice) and of reflecting about the action (theory). In this way, the organisational learning helix leads to a strengthened and expanded theoretical and practice base of organisations.

The organisational change helix: freeze-rebalance-unfreeze sequences

The freeze-rebalance-unfreeze helix originates from the literature on organisational change (Weick and Quinn, 1999). This second helix applies especially to complex situations where change can rarely be planned effectively. It builds around processes of joint sense-making and interpretation of information that follow the sequences of freezing-rebalancing-unfreezing. To *freeze* is to make patterns visible, for example, by collectively creating a story of change or undertaking a joint review process. To *rebalance* is to reinterpret, re-label and re-sequence the patterns, so that blockages are better understood and overcome. To *unfreeze* is to resume the process or action in ways that are now more mindful because of the incorporation of lessons and insights gained in the rebalancing⁷.

In this way, the freeze-rebalance-unfreeze helix connects learning with sense-making and change. These are three important processes when working on not well-definable issues in a changeable environment. Connecting these processes in a systematic fashion can make an intervention strategy more powerful. Moreover, by making the sequences of particularly freezing and

⁶ This differs notably from the term broadening used in Transition theory to indicate the repetition of an experiment in different contexts (see, for example, Loorbach and van Raak, 2006). Here the purpose is to strengthen, for example, the internal and external validity of evidence by roping in different sources and audiences, comparing findings from different contexts and sources.

⁷ David Kolb’s much used Action Learning model puts these steps in a context of action research. Kolb’s action learning, however, is limited to single-loop learning.



rebalancing collective, the change process can be consciously designed to stimulate communication between stakeholders inside and outside an organisation. Similarly, interactions between different intervention levels can be encouraged, for example, by creating multi-stakeholder platforms where local communities can interact directly with national or international groups. Both ways, between groups and between levels, contribute to bringing knowledge from diverse sources together and synthesising them to a common understanding. In short, they are conducive to knowledge integration.

In the next section, KI will be further embedded in the key organisational processes of learning, sense-making and changing by merging together the two helixes of learning and changing.

Merging together the helixes to produce evidence

One simple definition of *evidence* is that it is something that furnishes proof⁸. Four criteria are commonly used for judging the robustness of evidence: relevance, corroboration, veracity and validity (Rieper et al., 2012: 2)⁹. In a way, these criteria are relative; for example, what is relevant depends on one's viewpoint, and how much is acceptable can be part of a multi-stakeholder negotiation. In consequence, standards

⁸ <http://www.merriam-webster.com/dictionary/evidence?show=0&t=1369394430>, accessed 24th May 2013.

⁹ Rieper et al. (2012: 2):

- Relevance: in relation to a given assertion
- Sufficiency: in sense of corroboration with other instances of the same kind of evidence or other kinds of evidence
- Veracity: the process of gathering evidence has been free from distortion and as far as possible uncontaminated by vested interests
- Validity: internal validity refers to how true inferences are regarding cause-effect or causal relationships; external validity refers the degree to which the conclusions in your study would hold for other places, persons, times etc.

need to be agreed depending on the demands and other situational factors.

Knowledge can also be graded in terms of the four criteria. As mentioned, bringing together different perspectives, which is the focus of a Knowledge Integration approach, can generate more robust knowledge. This happens, for example, by corroborating a previously isolated experience or enhancing the external validity of a conclusion reached under one particular set of conditions through methodical sharing or consulting with a set of selected stakeholders. When KI systematically seeks to bring together different perspectives about how to achieve change, the robust knowledge that is gained can be tapped to provide robust evidence about change interventions. This requires a process of transcription, i.e. translating the knowledge produced into a format that can be registered as evidence, depending on the type of evidence required¹⁰. The potential offered by such a KI process is significant: connecting learning with changing can generate both knowledge and evidence; doing this systematically can generate knowledge and evidence that are both more robust, especially when the desired change concerns complex societal issues.

Bringing together the earlier mentioned helixes of Learning (Single- and Double-Loop Learning) and Changing (Freeze-Rebalance-Unfreeze) helps to create a systematic theory-rooted Knowledge Integration process. This happens by – crudely speaking – cutting the helixes into pieces (the steps) and then merging these together into one KI-helix. How many steps are used of each original helix and how, in what order, they are put together to create the windings of a KI-helix depends on the situation and issue at hand. This is the unknown element.

Yet, the unknown does not equal unbounded. The boundaries of the KI process are set by the definition and delimitation of the four mentioned criteria for robustness: relevance, corroboration, veracity and validity. There are no fixed or absolute values of what each constitutes. For instance, relevance depends on the interests of involved stakeholders (and sometimes on the openness of financing agencies). Imagine a three-year project in which six windings of the organisational

¹⁰ According to Davies (2004. In Rieper et al. 2012: 175) there are many types of evidence including impact evidence, implementation evidence, descriptive analytical evidence, statistical modelling, economic evidence, and ethical evidence.

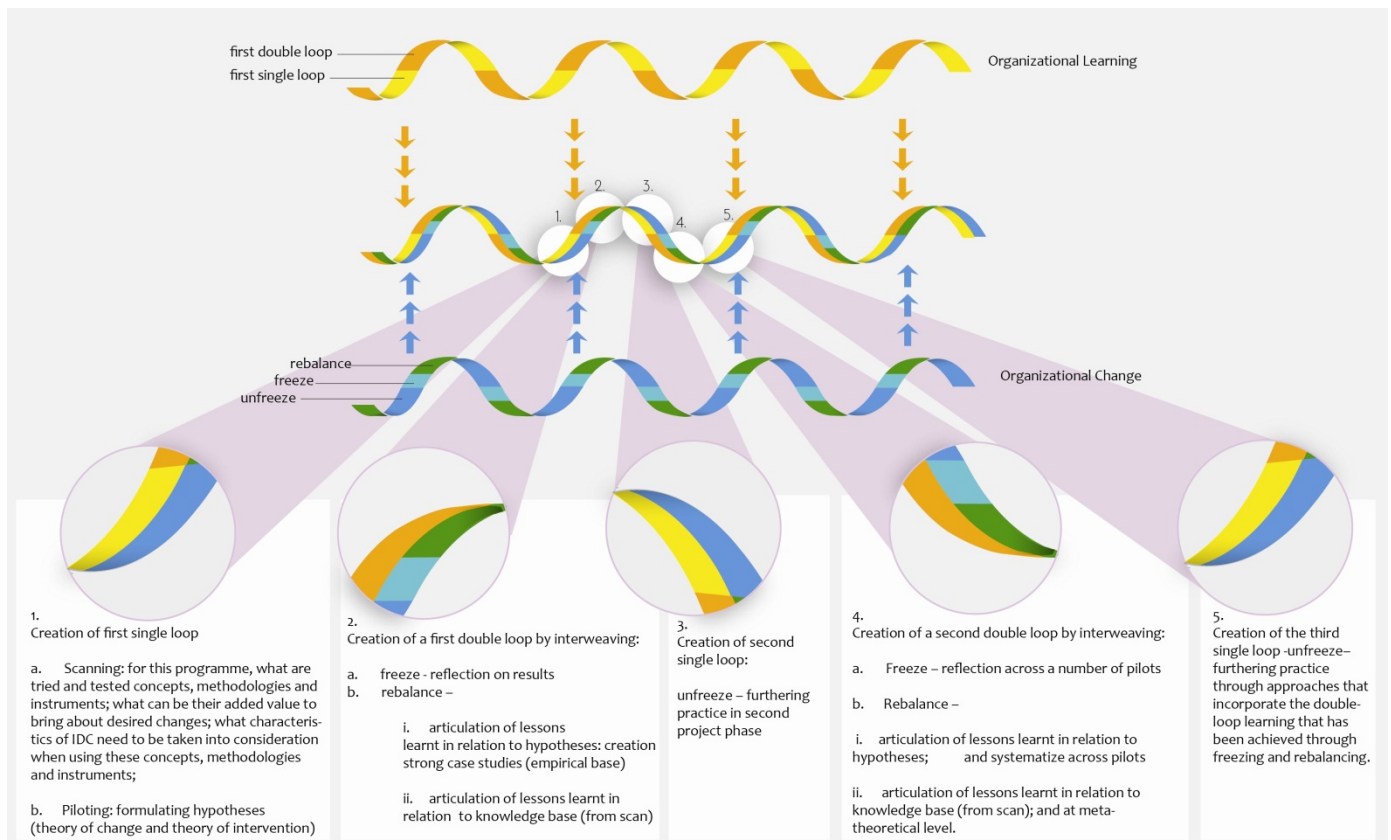


Figure 2: merging together the two theory-rooted helices (Ho, 2013). ©Hivos

change helix are planned, each with the three sequences of freeze-rebalance-unfreeze. In that helix, 'freezing' of activities undertaken and results gained could happen through the writing of half-yearly reports. Those reports may result in an adjusted half-yearly action plan (rebalancing). The same can also be achieved by organising a staff retreat or community review (freezing) during which corrections or innovations (rebalancing) are introduced. While in the three years there may be six windings of the organisational change helix, there might be just one in the Learning helix. This is, for example, the case when in those three years no mid-term review is planned and only a final evaluation. The latter may be designed like a meta-study that brings together the results from three similar country projects. In this case, only single-loop learning is encouraged until the end-term evaluation, when the aim is double-loop learning.

Note that the helices of Learning and of Changing are both built up by mainly tried and tested elements. Their sequences or steps may have a similar feel, e.g. multi-stakeholder workshops. The differences between the helices are of focus and emphasis. Report writing can, for example, be a freezing activity (change helix), a (collective) learning experience, or even be designed to contribute to both change and learning. The emphasis at a certain stage and the focus with which it is undertaken

are leading: if the focus of a writing exercise is on freezing, then that determines its design.

It is in the art of merging together those known elements to form the windings of a KI helix that the unknown element resides. Unfortunately, there exist no step-by-step recipe for this, only guidelines similar to 'let the sauce brown until you like it' in a cookbook.

Nevertheless, let's try to unpack the unknown element by looking at an imaginary example of a KI process. The example illustrates the creation of possible KI windings out of steps from the two helices. Different ways of sequencing the steps or using other tools or instruments are of course possible. Also, as mentioned earlier, in Knowledge Integration the steps are not limited to one organisation only. Therefore, the different steps of both the learning and changing helix can be designed as collective exercises, involving changing sets of multiple parties depending on the objective of a specific step. For example, enhancing internal validity asks for the involvement of a different (sub) group of stakeholders than validating the relevance of data. The central issue here is to be able to explain the *For what* and *Why* of a certain sequence or *Why not* if occasion arises.

The imaginary example is represented in figure 2. To better visualise how the two original helices are put

together, different colours are used to represent the sewn-together helix of the KI process:

- For the learning helix: yellow for the single-loop sequences, and orange for the double-loop part
- For the organisational change helix: green for the Rebalance sequences, light blue for the Freeze and darker blue for the Unfreeze sequences.

This imaginary example of a KI process is sequenced as follows:

1. Creation of a first single-loop learning winding:
 - a. Scanning – this scan can cover, among others, existing literature or other experiences or projects, and addresses the following questions:
 - i. for programme XXX, what are tried and tested concepts, methodologies and instruments;
 - ii. what can be the added value of these concepts, methodologies and instruments to bring about the changes aimed for in programme XXX;
 - iii. what characteristics of the environment need to be taken into consideration when using these concepts, methodologies and instruments.
 - b. Designing the pilot – formulating working hypotheses for the pilots of programme XXX (theory of change and theory of intervention). Depending on the degree of, for example, geographical variation, a decision on the number of pilots is taken. The higher the variation, the more pilots are needed
 - c. Implement pilots programme XXX.
 - d. Single-loop learning – day-to-day, weekly or even monthly adjustments of what is implemented according to the plan. This can take place at an individual level or during operational team reviews. A pattern of cumulative adaptations emerges.
2. Transition to a first double-loop learning winding by delving deeper and merging learning with the organisational change helix:
 - a. Freeze – momentary stop of the implementation process to identify and make explicit certain patterns and create a narrative of what happened. An example of a narrative can be 'This has taken place, because...', or: 'As that happened, we have adjusted...'. Besides a reflection on results, the validity of the hypotheses and resulting policies formulated in the pilot phase are analysed in relation to the adaptations introduced during the implementation and the effects observed. Values underlying the hypotheses are also questioned.

This analysis or questioning happens therefore at two levels:

- i. articulation of lessons learnt *in relation to hypotheses*: these lessons lead to the creation of stronger case studies (and result in a strengthened empirical base). It is not sufficient to have a simple story of change: the case studies should be used to contribute in the rewriting or further concretising of the hypotheses formulated at the beginning. Also, the case studies provide the embedding of a story, a narrative that links the hypotheses with (past and future) change. Articulation at this level ensures that the team does not get side-tracked. It, however, should leave room for lessons about unexpected events or effects to avoid a myopic freezing process.
- ii. articulation of lessons learnt *in relation to the knowledge base obtained so far*, that is the lessons are compared with what emerged from the first scan of literature or other experiences. This may seem tiresome and undo-able in 'real-life', a complaint often uttered by practitioners. However, this particular step provides some kind of guarantee that the lesson learnt is not just rediscovered. In fact, this step is essential to strengthen and advance the theoretical foundation that can underpin social change interventions.

To contribute to Knowledge Integration, this step is made into a shared exercise. This can be achieved, for example, by collectively creating a story of change. In the shared freezing sequence, the different knowledge perspectives of involved parties are brought together. Not all elements of the freezing need to be undertaken jointly. Areas to be analysed can, for example, be divided among groups or group members. However, it is important that collective moments are built in as well. In this manner, a joint freezing contributes to the required synthesis of different perspectives for a common knowledge base with all its associated benefits. For instance, through the design and timing of these shared activities, addressing, among others, corroboration or veracity these can be made more robust.

- b. Rebalance – While freezing entails looking at the past (for example, to create images and stories of what has happened, during rebalancing the focus shifts towards the future. Based on the outcomes of the freezing step, the earlier ideas are reformulated about what needs to be done and how, based on the insights in why and towards

which objectives. This is not a new invention. However, it is easy to just jump through the hoop and keep on scratching at the level of activities. To go deeper and encourage double-loop learning, the reformulation or rebalancing should be done at two levels: at the level of hypotheses and of the knowledge base. Rebalancing can be done as exhaustively as the means available (time, participants, interest etc.) will allow, as long as the central objective is kept in mind: reduce the number of blockages by re-labelling and re-sequencing at the level of hypotheses and of approaches.

3. Creation of a second single-loop winding by merging with the organisational change helix: unfreeze – furthering practice through approaches that are reformulated to help unfold events in more meaningful ways. These approaches incorporate the double-loop learning that has been achieved through freezing and rebalancing.

In the case of programme XXX, in a second project phase, the focus may change from piloting to an up-scaled level of implementation, with an adjusted and refined theory of change or theory of intervention.

Other single-loop sequences can follow, e.g. monthly community monitoring or report writing.

4. Creation of a second double-loop winding by merging learning with the organisational change helix:
 - a. Freeze – during this second momentary stop again patterns are identified and made explicit and a narrative of what happened is created. Depending on the experience bases that have been built so far in programme XXX, freezing can, for example, take the form of collective analysis and reflection across a number of pilots. This means that the articulation covers again the two levels:
 - i. articulation of lessons learnt in relation to hypotheses, and systematization of these lessons across pilots in order to strengthen the base from which conclusions can be drawn.
 - ii. articulation of lessons learnt in relation to the knowledge base (from the scan and the first freeze); and at a meta-theoretical level to link the insights, for example, from different disciplines.

Care has to be taken to delimit and define that knowledge base, especially considering the issue of external validity (Cartwright and Hardie,

2011). Pilots with a strong external validity need not produce exactly the same results. Cartwright and Hardie therefore promote the idea of looking at what matters to adjust and fine-tune, for example, a theory of intervention or a theory of change, to define the knowledge base.

- b. Rebalance – again the focus moves from the past towards the future by reformulating ideas (hypotheses, policies etc.) about what needs to be done. The objective of this second rebalancing remains the same: encourage double-loop learning at the level of hypotheses and approaches so that the change process can restart from a reformulated, reinvigorated basis. As mentioned, building in collective activities contributes to KI and can make the process more robust.

5. Creation of the third single-loop winding: unfreeze – furthering practice through approaches that incorporate the double-loop learning that has been achieved through freezing and rebalancing.

Note that in the above example, the meta-level is reached only in the second double-loop (step 4) where lessons across pilots and at a meta-theoretical level are formulated. This activity can be moved forward or backwards in time depending on the situation (requirements and resources available, degree of robustness to be achieved). However, it is important to arrive at this meta-level at some stage by building in, for example, a systematic review or a meta-analysis. At this point the team can scrutinise if and under what circumstances certain interventions may work, and show to others that it has not been cherry-picking.

Earlier, relevance, corroboration, veracity and validity were mentioned as the four criteria used commonly to judge the robustness of knowledge and evidence. Some hints have been given in the above example of how a



higher grading on relevance, corroboration, veracity and even validity can be achieved through a careful design and sequencing of the KI process to methodically involve selected parties. A higher grading on internal validity comes, for example, from checking the consistency of conclusions regarding results and effects with the parties involved in a programme. Doing so across different programmes comparing, for example, locations, socio-economic groups etc., helps to improve the external validity. Similarly, a design that is mindful of [takes into account] power issues can boost the grading on relevance, corroboration and veracity by building in steps to prepare minority voices to express what is relevant to them.

4. Final remarks

A close look at the different steps shows that separately, they are not really new. They are already being undertaken by a range of organisations. What is novel is the purposeful ordering of these steps, the intimate twining of changing, learning, and sense-making, and the systematic building-in of interactions between different stakeholders honouring the principles of knowledge integration. This purposeful sequencing produces lessons that can be used as rigorous evidence, because it is created by methodically learning from different knowledge perspectives.

Often in what can be counted as evidence, certain types of knowledge, such as academic knowledge, carry more weight than subjective, experience-based knowledge. By intentionally interjecting collective interactions with subgroups and individual events, it is possible to create a more even balance of what is appreciated and included.

Contrary to what may be thought, the amount of information generated through reviews by social change organisations, among others, is often far too much to use sensibly and learn from it. This is often the case with big organisations. It is even more applicable to knowledge integration approaches when several organisations are involved. Closely tying together changing, learning and sense-making can make the process 'lean and mean' because loose data that do not make sense will quickly be discarded or not even collected.

With a demanding and often mystifying approach like Knowledge Integration, it can help to give the 'beast' a name, for example, by using a term like sequencing, or looking at the why of a particular winding as part of a longer process rather than as another activity. Finding the right wording or concept is often part of the problem (and the solution) as it can help to put on the right lens



and provide an abstract process with manageable handles. However, the crux is not whether one uses difficult, abstract terms. What is key to optimally using KI for robust evidence-creation is that one does not treat the different processes, such as collective sense-making or learning, as standalone pillars. The main message here is the importance of systematically establishing and reinforcing logical connections: between purposefully ordered steps or activities, *as well as* between central organising processes. This theory-rooted connecting mindset provides an affordable remedy against losing track of the logic of different steps, over-enthusiastically undertaking a range of activities with a weak internal logic (fuelled by the do-mode of a project-oriented organisation), or confusion about the longer-term horizon in a diffuse process such as knowledge integration. Using knowledge integration in this logically sequenced and twined way will result in a more robust way of evidence-creation by practitioners, managers and evaluators.

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