

Monitoring and evaluating development as a knowledge industry: ideas in current practice

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About IKM Emergent

In April 2007, a five-year research programme was approved for funding by the Directorate General for International Cooperation (DGIS), part of the Dutch Ministry of Foreign Affairs. The programme, Emergent Issues in Information and Knowledge Management (IKM) and International Development, is known as the IKM Emergent Research Programme.

The objective of the programme is to improve development practice by promoting change in the way the development sector approaches the selection, management and use of knowledge in the formation and implementation of its policies and programmes. It aims to achieve this by:

- raising awareness of the importance of knowledge to development work and its contested nature;
- promoting investment in and use of Southern knowledge production of all types and origins;
- creating an environment for innovation, supported by research on existing and emergent practice, for people working in the development sector to raise and discuss means of addressing these issues; and
- finding, creating, testing and documenting ideas for processes and tools which will illustrate the range of issues which affect how knowledge is used in development work and stimulate thought around possible solutions.

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Summary

Although the existing literature offers excellent insights in the current practices to monitor and evaluate knowledge management for development (KM4D), some deeper issues have not been addressed explicitly enough to do justice to the philosophical and practical ground on which the IKM Emergent Research Programme is based. In order to redress these shortcomings, this paper offers an overview of the field of monitoring and evaluation (M&E) of KM4D and where it might be heading.

The paper first clears the ground by offering definitions on the key concepts involved, sheds light on the dark areas of current practices and paradigms before briefly concluding on the need to address the multiple knowledges that are contributing to the journey. The journey preparations end with signposts that have been theorized and/or implemented in order to shed some light along the way and clear a path that could be followed. Throughout this paper, the authors have assumed that knowledge has its own role as a lead player in the design, practice, and outcomes of development programs and projects. As a lead player, knowledge has its own particular requirements for M&E, and those requirements apply to the initiative as a whole.

There is a gap between the knowledge industry supported by organizations and the knowledge needs of their clients. M&E is often allocated a 'weak' position in the design of a development project. That weakness is reinforced by the dominance of a requirement to measure outputs, thus eliminating an understanding of the intangibles of trust, respect, translation, and collaboration, the reason for the journey into social change in the first place.

In reviewing the requirements of M&E for the development sector, the authors have examined the barriers to effectiveness and the questions that need to be asked. Addressing these barriers and answering these questions requires recognition of the many interests involved, each with their own ideals, sources of information and avenues for action. In particular they have recognized that decisions on the design, conduct and outcomes of a development initiative are determined by multiple knowledges, those of key individuals, the affected community, the specialist advisors, the influential organisations, and the holistic focus of the initiative in the first place. A review of the models of M&E most frequently applied in the development sector found that these considered single dimensions of an intervention, rather than attempting to provide an understanding of the whole. Few if any of the current approaches to M&E take account of the flows of ideals, facts, ideas and actions that make up the iterative learning cycle of any initiative for social change. Even less are they likely to recognize, much less include, the multiple knowledges involved in the course of a development programme. There is need to develop a framework which encompasses all of these dimensions. In *IKM Working Paper No. 13*, the authors consider what such a framework could look like and propose a collective enquiry approach as a possible way forward.

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1 Introduction

“It is, in fact, nothing short of a miracle that the modern methods of instruction have not entirely strangled the holy curiosity of inquiry.” With these words of caution, Albert Einstein unconsciously hinted at one of the central challenges in today’s development practices (Einstein, 1951).

In the *knowledge age* that so many people refer to – and that also applies to development work (Powell 2006) – we are surrounded by a diverse range of innovations and knowledge-intensive processes, often supported by new forms of information technology. Knowledge is considered the central commodity in the development ‘knowledge industry’ and if we are to understand what works in development then we have to understand the important role that knowledge plays. The most precious means we have at our disposal to do this is our capacity to reflect, connect, inquire, and learn in order to make sense of our ever-changing environment, relationships and very own purpose and nature. However, in development work, a crucial mainstreamed practice that supports management decisions, monitoring and evaluation (M&E), regularly fails to make full use of these human capacities, and is rarely equipped to dealing with questions about the role of knowledge in development.

Although the existing literature offers excellent insights in the current practices and gaps as well as useful theoretical frameworks and overviews of tools that can be used to monitor and evaluate knowledge management (KM), some deeper issues have not been addressed explicitly enough to do justice to the philosophical and practical ground on which the IKM Emergent Research Programme (IKM-E) firmly stands. In order to redress these shortcomings, this paper, and another follow-up paper (‘Monitoring and evaluating development as a knowledge ecology’, Le Borgne et al. 2011, IKM Working Paper No. 13, August 2011) offer a journey through the many fascinating worlds of monitoring and evaluating knowledge management for development (KM4D). This paper offers an overview of the field and where it might be heading.

- In the first tier, this paper considers the journey by looking at the maps currently in use: the paper first clears the ground by offering firm definitions on the key concepts involved, sheds light on the dark areas of current practices and paradigms, before briefly concluding on the need to address the *multiple knowledges* that are contributing to the journey. The journey preparations end with signposts that have been theorized and/or implemented in order to shed some light along the way and clear a path that could be followed.
- In the second tier, the follow-up paper offers an alternative journey which conceptualises M&E as a collective inquiry whose learning focus is knowledge management for development. It does so by respecting the diversity of aspirations and susceptible behaviours of the various adventurers volunteering for the enterprise of KM and the M&E of KM. It considers the (conceptual) equipment necessary to be fit for the journey, to avoid getting lost in the journey that pursues, monitors and evaluates the maze-like forest of development initiatives. In the subsequent paper, the path for the journey is followed step by step with a practical approach that emphasizes the contributions of the adventurers involved and the tactics to coordinate their collective conduct on the journey.

2 Clearing the ground: establishing a common understanding of the territory to chart

2.1 A discussion of terminology

It is always a good idea for a traveller setting out on a journey to have some idea of the terrain they are entering; so too in this case. The domains of development, monitoring and evaluation and knowledge management are riddled with terminology that is so easy to take for granted and replicate without really dwelling on what the meanings of these terms are in the context of the journey. We accept and relish the fact that most of the terms we use have multiple meanings, depending on culture, time and discipline. But we also recognize and stress the importance of being very clear on the particular definitions being used in a given enquiry. Therefore, for conceptual clarity, we provide here a set of definitions for the central terms used in this paper.

2.1.1 Monitoring and Evaluation (M&E)

In the development field, monitoring and evaluation have well defined meanings, with the OECD DAC definitions being the most widely accepted. Evaluation is defined as ‘the systematic and objective assessment of an on-going or completed project, programme or policy, its design, implementation and results,’ and monitoring as ‘a continuing function that uses systematic collection of data on specified indicators to provide... indications of the extent of progress and achievement of objectives...’ (OECD, 2002).

We accept these definitions as they are, but suggest caution in their handling. All too often, in this field, we see evaluations being reduced to certain types of one-off study conducted at the end of a particular initiative which aims to prove whether the initiative fulfilled its objectives or not. Likewise, monitoring is reduced to a specialised role that is outsourced to an expert who regularly checks up on the progress of activities against preset indicators. In our perspective, to reduce M&E down to these types of activities is not doing justice to the definitions given above. To make sense of the landscape of the M&E of KM, we must have a broader perspective of M&E.

To this end, we will accept any definition of M&E that recognizes: monitoring and evaluation as universal functions critical to all change processes and not just specialised roles carried out by experts; the acceptance of different worldviews and the validity of evidence from different knowledge domains; the ethical basis for the desired social change (Russell 2010); and the importance of the unexpected and the intangible.

2.1.2 Knowledge (and information)

A satisfactory definition of knowledge is notoriously difficult. Philosophers of the scientific era have labelled it “justified true belief” (Honderich, 1995). A 15th century monk, Saint Boniface described the production of knowledge as a combination of the eye of the body, the eye of the spirit and the eye of the mind (Emerton, 1940). Not very different from this is the proposition of the 20th Century father of the philosophy of science, Karl Popper, that knowledge emerges from a combination of the field of ideas, the bio-physical world and the eye of the observer (Popper, 1963).

In the light of the above, it becomes clear that knowledge is a complex, dynamic and open-ended construct distinct from information, in spite of the continuing confusion between the use of the terms knowledge and information. To resolve this confusion KM field specialists have long embraced versions of a hierarchy composed of data (observations), information (interpretation of the data), knowledge (evaluation of the information) and wisdom (ability to apply the knowledge constructively over time), sometimes referred to as the *DIKW pyramid*. More recently, discussions in the KM field have tended to move away from the DIKW model and to examine each of those terms in their own

right (KM4DEV 2010¹). In the new paradigm, information is related to data since they represent two static elements. Information is codified and abstracted data, while construction of knowledge underpins the dynamic process to turn data into (meaningful) information and to go beyond what is given. Wisdom is intentionally left aside here as entering another dimension. Consistent among these varied propositions is the understanding that the construction of knowledge includes the objective and the subjective, the individual and the society, facts and values. Any or all of these dimensions contributes to the pursuit of harnessing the potential of knowledge, and so to its monitoring and evaluation, and also its sharing and use.

2.1.3 Multiple knowledges

Given the many dimensions of thought and the wide range of tools that contribute to the construction and sharing of knowledge, it is not surprising that knowledge is shaped differently in different societies, during different eras, and by different communities. Pant (2008) identifies 21st century divisions of development knowledge according to research fields (the academic disciplines); type of resources (social, environmental and economic); and culture (North and South).

Decisions around knowledge work for development have been found to be divided among the interests of individuals, community, specialised, organisational and holistic. In a wide range of community studies, each of these interests proved to have their own preferred sources of evidence, tests for truth, and criteria for success (Brown, 2008). Each of the key interests proved to be distinctive enough to amount to a different knowledge culture, requiring cross-cultural collaboration in any common enterprise. In any concerted knowledge-focused activity, all five knowledge cultures will need to be considered in this light, in addition to a sixth knowledge culture; some form of collective learning that allows for mutual sharing among the other five. The concept of multiple knowledge explicitly recognizes the six different cultures as legitimate knowledges in their own right.

2.1.4 Development

Development is a complicated term to unravel, and in fact beautifully demonstrates the concept of multiple knowledges since it is understood very differently from different perspectives. From a global point of view, the dominance of the Millennium Development Goals supports a view of development as a service industry (Powell 2008). Powell argues that development is more than the provision of a service but must be accompanied with the creation of socio-economic circumstances where service delivery can remain sustainable; thus development is better likened to a knowledge industry rather than a service industry, since an understanding of the socio-economic environment and the perceptions of local populations must pre-suppose service delivery.

Our understanding of development follows that of Powell but goes further to see development beyond the aid 'industry' and includes what Saraswati (1997) called "endogenous cultural dimensions", and Rahnema and Bawtree (1997) called "indigenous autonomous social movements". In essence we see development, borrowing but adapting the words from Unwin (2009), as progress and growth, whether agency-driven or civic-driven, towards a greater good, be this economic, social or political.

2.1.5 Knowledge management for development

Knowledge management for development (KM4D) is a term that encapsulates two applications of the knowledge collected for this purpose: knowledge that informs development (K4D) and the professional practice of knowledge management (KM) (Mendonça Ferreira 2009). As it currently exists, K4D is a field that is concerned with the role of knowledge in systemic and macro-economic development. However, KM is often treated as a sub-branch of management concerned with harnessing knowledge in order to improve the effectiveness of activities from the narrow lens of organisations. Mendonça Ferreira (2009) provides a very useful distinction between knowledge as a

¹ http://wiki.km4dev.org/wiki/index.php/DIKW_model

social resource, referring to knowledge that can be 'effectively mobilized by local society for addressing specific problems of development'; and knowledge as an agency resource, referring to the knowledge that '[development] agencies have about societies, development and management with the purpose of defining their policies and programmatic approaches'.

At any rate, knowledge is not a commodity and it cannot be managed by anyone or anything. Knowledge is generated through a personal association built through many social interactions (Polanyi 1958). While we cannot "manage" these associations or interactions, we can manage the practices around them and the protocols we use to frame these practices. The term *Knowledge Management* remains, however, as the dominant phrase to refer to these activities (Snowden 2002). The paper proposes to embrace the conception of *knowledge management as including, constructing, identifying, acquiring, sharing, applying, and evaluating knowledge for development*. For the sake of simplicity we will nonetheless refer to it using the acronym 'KM4D' throughout this paper.

2.1.6 M&E of KM4D

The specific case of monitoring the construction of knowledge and the associated knowledge management in any one initiative is a sensitive affair. It conjures up a set of delicate issues that are not discussed at any length and clarified in the literature, let alone acted upon in existing practices among development agents. These issues are *ontological* (What world-views are reflected here?), *epistemological* (What are the knowledge domains to be managed?), *sociological-political* (Who has a stake in monitoring knowledge processes and who has a prevailing power in this? How can we assess these interdependent relations from a complexity lens?), *methodological* (How does one choose between all of the tools and approaches to find relevant ways to assess inputs, processes and outputs?) and *operational* (How does one go about organising M&E activities to demonstrate value according to the intentions expressed on the subject of knowledge processes?).

In short, we are dealing with matters of diverse world views and different forms of knowledge, power and governance. Effective methodologies will ultimately need to hold these together in a set of monitoring activities that make sense for all the parties involved and add value to understand, justify and improve certain knowledge processes. While we have no clear answers, there are signposts that indicate the way this could be done.

More widely, the monitoring and evaluation of knowledge management for development seems to be a question of monitoring the different modes of construction of knowledge supporting transformational change and its impact on development goals.

2.2 Challenges in monitoring and evaluating knowledge management for development

2.2.1 KM4D does not, as yet, have a well grounded theory

KM originated as an organisational management paradigm through the private sector's practical experience. As a result, there is much confusion over concepts and theories. The terminology is not well understood or rigorously applied, with many people interchanging terms such as information, communication and knowledge. There is also a large overlap with the work of disciplines such as organisational learning, information technology and human resource management. Add to this action learning and appreciative inquiry, and it becomes a challenge to define the scope of knowledge management for development.

Without the stern eye of critical theory, there is a danger that each of the words 'knowledge management' and 'development' become subject to the mad hatter's edict in *Alice in Wonderland*: "I expect a word to mean whatever I want it to mean"; hence our earlier discussion on definitions.

2.2.2 Knowledge for development practice is still young

The strategic and explicit use of the term knowledge for development is a relatively new approach that has not yet reached critical mass in the sector. Hence there is a lack of evidence demonstrating the impact of explicit knowledge that can inform development strategies (Ferguson et al. 2008).

2.2.3 KM4D goes beyond what is labelled 'KM'

Considering the definition in the previous section, the term knowledge management can have multiple simultaneous meanings, for example, KM can:

- be used to describe the role of specialists (sometimes referred to as knowledge workers, knowledge brokers or information professionals) in organisations who are responsible for setting up and coordinating processes for developing and sharing knowledge – or strange operations referred to as knowledge capture/storing and transfer;
- encompass conscious and unconscious elements of everyone's daily work which may be an educational strategy, pursuing a change process, developing a product or providing advice;
- be consistent with managing social change and open critical inquiry.

The challenge for monitoring and evaluating KM is to encompass the broadest definitions and to explicitly clarify these various terms. Issues in achieving any or all of these activities are discussed on the wiki of the Knowledge Management for Development (KM4Dev) community of practice².

2.2.4 Competing ontological and epistemological perspectives (and related knowledge systems)

Development initiatives typically involve not only multiple knowledges but also a multitude of actors – donor agencies, international and national NGOs, communities, consultants/specialists, evaluators, governments and media – all occupying a specific function in the process of M&E of KM. In relation to knowledge, each of these actors has a different value system related to their perspective – whether they are a knowledge user or a knowledge creator – their worldview and their perception of other actors. The legitimacy, value and provenance of each of their knowledge bases need to be explicitly addressed in order to be able to explain the M&E perspective and identify the set of tools that could best support the objective.

2.2.5 Existing reporting frameworks are designed for a service industry rather than a knowledge industry

'The concept of impact and the indicators for its measurement need to be redefined' (Ferguson et al 2008). As discussed in the previous section, Powell (2006) argues that development is fundamentally a 'knowledge industry' and will not lead to the intended outcomes of sustainable change without a good understanding of the particular socio-economic reality being affected, and an appreciation of the perspectives of the local populations within that reality. This is in tension with the way in which success is traditionally perceived in development, which is usually conceived in terms of macro-economic measures, demographic changes, capital accumulation and industrial progress; ideas that originate from a predominantly European and North American cultural and organisational background (Unwin 2009).

² <http://www.km4dev.org/forum/topics/what-is-km-a-fad-faith-or-fact>

Box 1: Functional conflicts of interest in M&E of KM?

The role that we all play as actors involved in the process of M&E of KM influences our expectations about this process and its results. Particularly in organisational M&E of KM we may come across the following functional roles and biases:

Patrons are financing or commissioning the M&E activities, typically the donor of a project. This role tends to emphasize (financial) accountability and to adopt a rather linear approach to M&E of KM as it evolves in management circles which have inherited the engineering approach on KM and its (economic) value within the organisation. Return on Investment, impact, facts and figures (quantitative indicators) seem to predominate in this circle.

Account handlers are steering the general activities of the entity carrying out KM activities. They may simultaneously act as patrons but their function here is primarily to design and manage programmes (including KM activities). These would be typically the managers of organisations or team leaders. Being directly accountable to patrons, they may find themselves inclined to consider the perspective of patrons sooner than taking on board their staff's perspective on KM activities and how to assess them.

Implementers are the individuals or groups leading the KM activities that we are monitoring, i.e. typically the employees of an organisation or the teams carrying out the work. For them there is much more value in understanding how they can make their work more efficient and more effective (delivering more value with the same amount of efforts) and because they may be directly confronted with the reality in the field, they may tend to question the expectations of patrons and account handlers to quantify KM initiatives and to assess the impact of these initiatives.

Monitors are the team effectively monitoring: collecting data, analyzing information and reporting about it. Monitors could cumulate any of the above functions or act as independent monitors (as is the case with many evaluations) and could be either individuals or teams of people playing a distinct role in M&E activities. The main bias here may come from the distinction between internal monitors (tilting on the side of implementers) or external monitors (tilting on the side of patrons).

(Boundary) Partners (1) are potentially affected by the activities that are implemented and monitored and may therefore be involved in monitoring to offer an external view. Naturally this type of function tends to privilege whatever information is not strictly internal to the initiative. They tend to focus on the fruits (outputs and outcomes) of KM initiatives rather than the processes (activities) or the resources (inputs) that helped develop these initiatives.

Beneficiaries are the ultimate clients of the activities that are monitored, aside from the partners. For the same reasons as partners, they may tend also to look at external issues (e.g. the outputs and outcomes of an initiative rather than the inputs and activities).

The biases that we may observe can also be the result of having a limited set of people cumulate these functions, thereby reducing the clarity that could flow from a collective learning inquiry. At any rate, all these functional roles, together with the knowledge cultures, should be considered to identify the purpose of M&E of KM.

(1) The term 'boundary' is used to illustrate the actors that are chosen as partners because of their position on the boundary of the sphere of influence of the development initiatives: where they may be influenced by the initiative and where they are able to influence others outside of the initiative's reach (Earl et al. 2000).

2.2.6 *There can be no simple cause-effect relationship*

The natural tendency to seek linear relationships between outputs and impact simply won't suffice in the context of KM as we have defined it: as a human system (Juarrero, 1999). Even trying to identify non-linear effects of KM can be problematic as the cause-effect relationship simply does not exist, or becomes so convoluted, intertwined and abstracted that the effects are not observed until long after the scale of the KM intervention – and even if the effects were observable, attributing them to the intervention is nigh on impossible (Mowles 2008). The key challenge therefore is to identify the most appropriate proxies that illustrate the complexity and the direction of change.

2.2.7 *Knowledge is not static*

Knowledge does not exist in isolation as an entity that can be observed, measured and interacted with. It exists in a dynamic social interaction and is defined by the perspectives and contexts of the actors involved. Since knowledge for development is interdependent of the processes of social change in which it is being applied, it takes on the emergent properties of that change process.

This is in contrast to information which when printed and filed away remains frozen and hence more straightforward to track and assess. The confusion between the two terms has led many institutions and individuals to monitor information flows rather than knowledge gains under a 'monitoring KM' label. This may seem the easiest option to quantify, measure and assess knowledge work, but it fails to recognize the crucial difference between the static nature of information and the dynamic, social and emergent essence of knowledge.

2.2.8 *Lack of methods for interpreting intangibles*

M&E is more often than not focused on measuring. This poses a challenge when faced with intangible assets like 'knowledge'. The need for indicators and methodology is often incompatible with the nature of intangibles, which are largely unquantifiable. Knowledge acquisition and sharing, and the outcomes of applying the new knowledge need indicators which reflect nuanced understanding, interpretation and innovation. This is the same need that has challenged generations of educators forced to monitor and evaluate learning through tests called examinations. It is not surprising, therefore, that many people continue to rely on information as a surrogate for knowledge. They then find it a struggle to identify indicators and develop methods for measuring intangibles. Methods are needed that 'go beyond output-based' (Ferguson et al. 2008), methods which match and coordinate the *multiple knowledges* contributing to monitoring intangibles.

Box 2. General challenges of M&E that are pertinent to this study

M&E determines how interventions are conceptualized

M&E should be more than just a process that gets tacked onto a project since it is extremely influential in the development of strategies, determining the scope for projects, and interpretation of the outcomes. M&E is the primary interface between on-the-ground initiatives (i.e. operational teams, partners and beneficiaries) and managers and donors and becomes the 'window' to the project. The project then has to make sure that it operates in such a way that it remains visible in this window, is consistent with the original aims, and takes account of the unexpected. This highlights the importance of getting the right M&E approach.

A multiplicity of actors and competing agendas

Donors, evaluators, project managers, implementers and clients all have different expectations of, and attitudes to, M&E. This functional divide, combined with the set of knowledge cultures that are involved in M&E, often leads to tensions between proving (accountability) and improving (learning), even though there are many variations on this spectrum. Different perceptions of risks and opportunities, and indeed of success and failure, often stifle recognition of innovation. Issues of ownership and trust also effect M&E processes as they affect the quality and sincerity of the investigation being carried out under the label of monitoring.

M&E may make too-large claims (be too ambitious)

The monitoring and evaluation of development initiatives all too often make a fatal leap in logic. Major resources are often invested in the production and monitoring of outputs. With an over-emphasis on measuring and quantifying the achievements of projects. The search for success often strays beyond the point where attribution can be feasibly and realistically claimed and ends up putting unconstructive expectations on M&E. Monitoring and evaluation (M&E) is more constructive at making sense of reality when applied at a much more tangible level, closer to the point of intervention, but beyond the level of outputs; the so-called level of outcomes.

Practitioners lack time, space and incentives for useful reflection

The people involved in operational activities are rarely given the time and space for knowledge sharing and structured social learning. It comes, therefore, as no surprise that they also have too little time, energy or resources to undertake rigorous monitoring, documentation and sense-making. This has the tendency to detach M&E from the activities being monitored, which in turn decreases the value of M&E for those undertaking and/or funding these activities.

Balance between cost and benefit of M&E

M&E can require a significant investment of resources from those involved. The challenge is matching the level of investment with the scope and expectation of the process. Furthermore, emphasis should shift from collecting monitoring data to analyzing and using them to inform later activities accordingly. Those two monitoring activities underpin the value of M&E and should reflect the balance of a cost-benefit optimum.

Respecting rather than reducing diversity

Working with multiple knowledges, there is a need to recognize and to make use of the different resources and risks that each knowledge culture brings to M&E. Strong individuals can fractionate the enterprise, while they also bring leadership and/or original ideas. The community brings divided loyalties, which once harnessed, offer the capacity to embed the findings in future action. Specialists can offer a narrow interpretation, but also reliability and consistency in their findings. Organisational contributions can be self-serving, while bringing the power to ensure implementation. Arriving at a shared holistic focus takes time, skill and mutual trust.

Thus we have identified the dark zones of the territory that our journey is trying to cover. Despite the challenges along the way, previous expeditions have carved a path through the territory and left signposts for whoever wishes to follow the dreaded path of M&E of K4D.

3 Signposts: a review of current approaches to the M&E of KM

The challenges sketched above make up a collage of the very diverse practices that reflect the rich set of ontologies and epistemologies at play here. All these reflections play a role in forming a judgment about the chosen approach to M&E of KM. The following approaches represent different journeys through the landscape of M&E of KM and offer crucial signposts to follow a clearer path during the journey.

We take as a starting point in this review of approaches, two models that were presented in two previously published IKM-Emergent papers; the first by Hulsebosch et al. (2009), the second by Talisayon (2009). We will present the two models then suggest a number of areas in which they could be complemented, pointing out additional signposts that give us a richer picture of the potential directions.

Hulsebosch et al. present the ripple model for assessing the impact of KM strategies which is based on Kirkpatrick (1975), James (2002) and Wenger (2008, unpublished). The ripples identify four monitoring areas based on the creation of value at various levels in a knowledge chain.

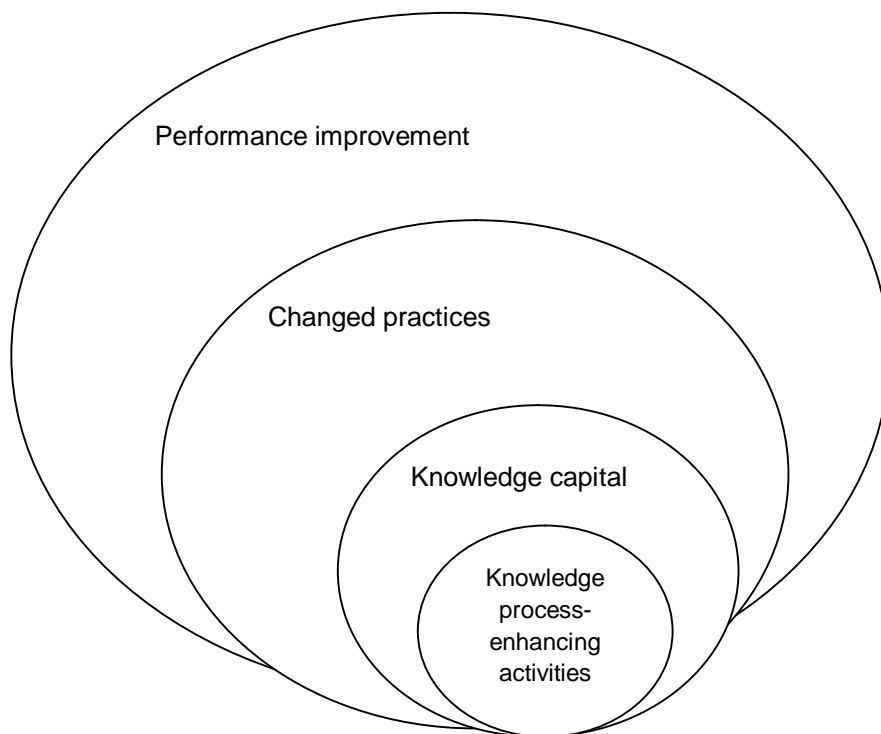


FIGURE 1 THE RIPPLE MODEL FOR MONITORING AND EVALUATION OF KNOWLEDGE MANAGEMENT STRATEGIES (HULSEBOSCH ET AL.)

The model takes KM activities as the starting point, which then produce or enhance knowledge capital. This richer knowledge capital then has the initial effect of changing practices (behaviours) and the longer term effect of improving performance. The ripples are useful for identifying the dimensions of change that need to be monitored once a stimulus is set in place.

There are three main concerns with this model as a theory of change. Firstly, there is no recognition of the wider context in which the activities, and subsequent processes, are taking place. Knowledge construction does not occur in a vacuum; it takes place in a given environment, a historical and political context. The second concern is that the process described is very linear; there seem to be no feedback loops. In practice, I create knowledge capital through an ongoing interaction in a process, and my practices are changed gradually in an iterative manner that in turn influences the knowledge that I gain in the process. Likewise, performance increases do not just happen through sheer momentum, as a ripple but rather through a much more complex web of interactions and mutual incidences. Thirdly, the relationships between the ripples are ignored; the articulations between activities, capital, practices and performances provide a rich learning ground, worthy of attention in monitoring and evaluation.

Moving on to the second model, Talisayon presents a KM causal model, called the KM Framework. In contrast to the Ripple model, the KM Framework starts with intangibles (including knowledge assets), then describes the decision or action that is effected by that asset and the valuable result of that action or decision.

As with the ripple model there are some difficulties with this framework. Non-linear effects are not taken into account, such as feedback, errors, negative or unexpected effects, interactions and interdependencies. However, the focus on intangibles offers a useful perspective and the openness of the 'valuable result' goes beyond organizational effects and implies broader developmental benefits.



FIGURE 2. KM FRAMEWORK (TALISAYON)

Talisayon's model is aiming for the same effect as the Ripple model: to describe the way in which knowledge and the management of knowledge-sharing processes contribute to valuable results and to identify the concrete areas to monitor and the kinds of changes to look out for. In trying to present a simple model, their reductionist approach has, however, reduced the complexity of knowledge processes to a level where the information from such a model has questionable value. In particular, we identify five gaps that would need to be addressed for the models to be more realistic and useful. For each gap, we present an additional model that we can use as a signpost on our journey, to take us beyond where the two previous models left us.

1. We need a better understanding of what intangibles are

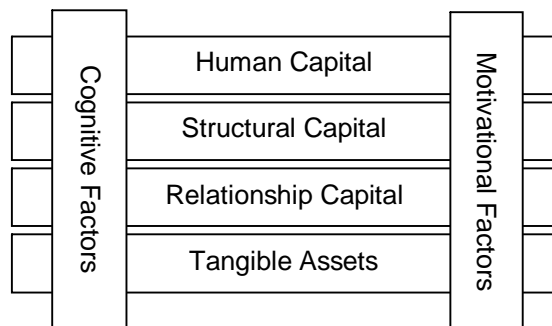
The KM Framework, in contrast to the Ripple model, allows for intangibles other than knowledge. Our perspective follows that of Talisayon; if we are to understand the value of knowledge for development then we need to also look at other intangibles: related to people (their capacities, motivation, creativity, attitude, morale, vision, sense of purpose etc.), their relations within and outside the initiative (and the trust cementing these relations), the governance of KM, the potential of leadership and environment to support or hamper KM activities and financial assets. Hence, including M&E of the intangibles involved in an initiative encompasses a broader and more useful scope than the M&E of knowledge management *per se*.

Intangibles related to knowledge management have been divided into three categories: human capital, structural capital and relationship capital (Talisayon 2009). These offer a basis for critical inquiry:

- **Human capital** refers to the competencies, knowledge, experience, personality and well-being of individuals and communities, thus allowing the inclusion of the value of innovation, action learning and unexpected events;

- **Structural capital** refers to the information, learning and policy environment that exists and allows for critical evaluation of what is, as well as what could be, in the way knowledge is currently being managed;
- **Relationship capital** refers to the linkages and interactions between actors, between organizations, and between knowledge cultures, including assets such as reputation, trust and respect.

It is the mix of these three types of intangible assets, plus tangible assets such as technology, financial resources and physical accessibility to intangible assets that enable individuals, teams and communities to create value in their context. Figure 3 illustrates these four clusters and demonstrates how cognitive and motivational factors cut across each of them.



**FIGURE 3. AN ASSETS MODEL OF VALUE CREATION
(BASED ON TALISAYON, 2009)**

While we recognize that this model provides a useful way of understanding the factors involved in the creation of value through the use of knowledge, it is very much embedded in economic and organisational paradigms; the term ‘capital’ implies something that must be earned, given or loaned and similarly ‘assets’ implies something that can be accrued and traded. The IKM-E approach takes the idea of capital as only one factor in a complex, dynamic system.

2. We need a better understanding of knowledge transitions

Both the KM Framework and the Ripple model describe various transitions or transfers of knowledge; in the Ripple model the transitions are from activity to knowledge capital, from knowledge capital to changed practices; and in the KM framework the transitions are from intangible assets to effective decision/action. What these models do not describe, however, is the transition between tacit and explicit forms of knowledge. For example, building knowledge capital through knowledge-enhancing activities involves a number of simultaneous processes – it’s not just a case of absorbing knowledge. The SECI model presented by Nonaka and Takeuchi (1995) describes four such processes: **Socialisation**: the sharing of tacit knowledge through conversation, cultural norms, mentoring, shared experiences etc. e.g. a craftsman ‘trains’ his apprentice through a shared language. **Externalisation**: articulation or expression of tacit knowledge into explicit forms such as metaphors, models and analogies that can be used by others. e.g. annual rainfall in a village is measured and recorded for all to see. **Combination**: combining explicit ideas with other ideas to organise, filter and analyze them. e.g. I read a set of articles and write a blog post summarising them and adding my opinions. **Internalisation**: understanding, making use of and embodying explicit knowledge such that it builds tacit knowledge – e.g. guidelines become institutionalised into organisational culture.

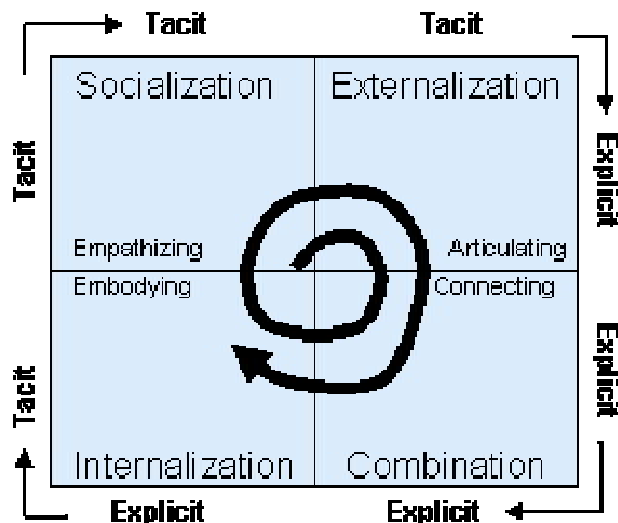


FIGURE 4. SECI FRAMEWORK (NONAKA AND TAKEUCHI 1995)

The SECI framework provides us with a way of understanding how knowledge is constructed in its various forms and how it is transferred between these forms. By recognizing that knowledge is not simply ‘created’ through an activity or initiative, but that there are iterative processes at play, we can build a more accurate picture of how a particular knowledge initiative stimulates knowledge production.

3. We need a better understanding of how knowledge is put to use

In addition to understanding how knowledge is constructed and transferred, we also need a deeper understanding of how it is used or applied. The KM framework simplifies this in the first step: the application of knowledge leads to effective decisions or action. The Ripple framework also represents this in one step: knowledge capital leads to changed practices. When we come to evaluate these initiatives we need to unpack the complexity of these steps and at least attempt to understand the mechanisms and contexts that lead to, or prevent the use of, knowledge. One model that attempts to do this is the “Knowledge to Action” process developed in the health research sector in Canada (Graham et al. 2006).

The model offers an integrated framework that combines knowledge generation, knowledge application and the processes that link the two – often known as knowledge translation or knowledge exchange (Graham et al., 2006). It represents a more comprehensive approach to KM than either of the initial models and suggests some concrete processes that can be monitored.

The model is constituted of two elements, the **knowledge creation funnel** and the **action cycle**, which describe two interlinked concepts which in reality are difficult to separate: the creation and synthesis of knowledge and the activities and processes related to its use. The core of the model is the knowledge generation funnel which describes the successive actions that collect, synthesize, distil and make meaning of knowledge and hopefully will lead to more useful knowledge products. The action part of the model presents a series of activities that may be needed for the application of knowledge. The phases are not distinct from each other and can be influenced by other action phases and the knowledge generation phases. The cycle has been derived from a study of theories of planned change (Graham et al, 2001).

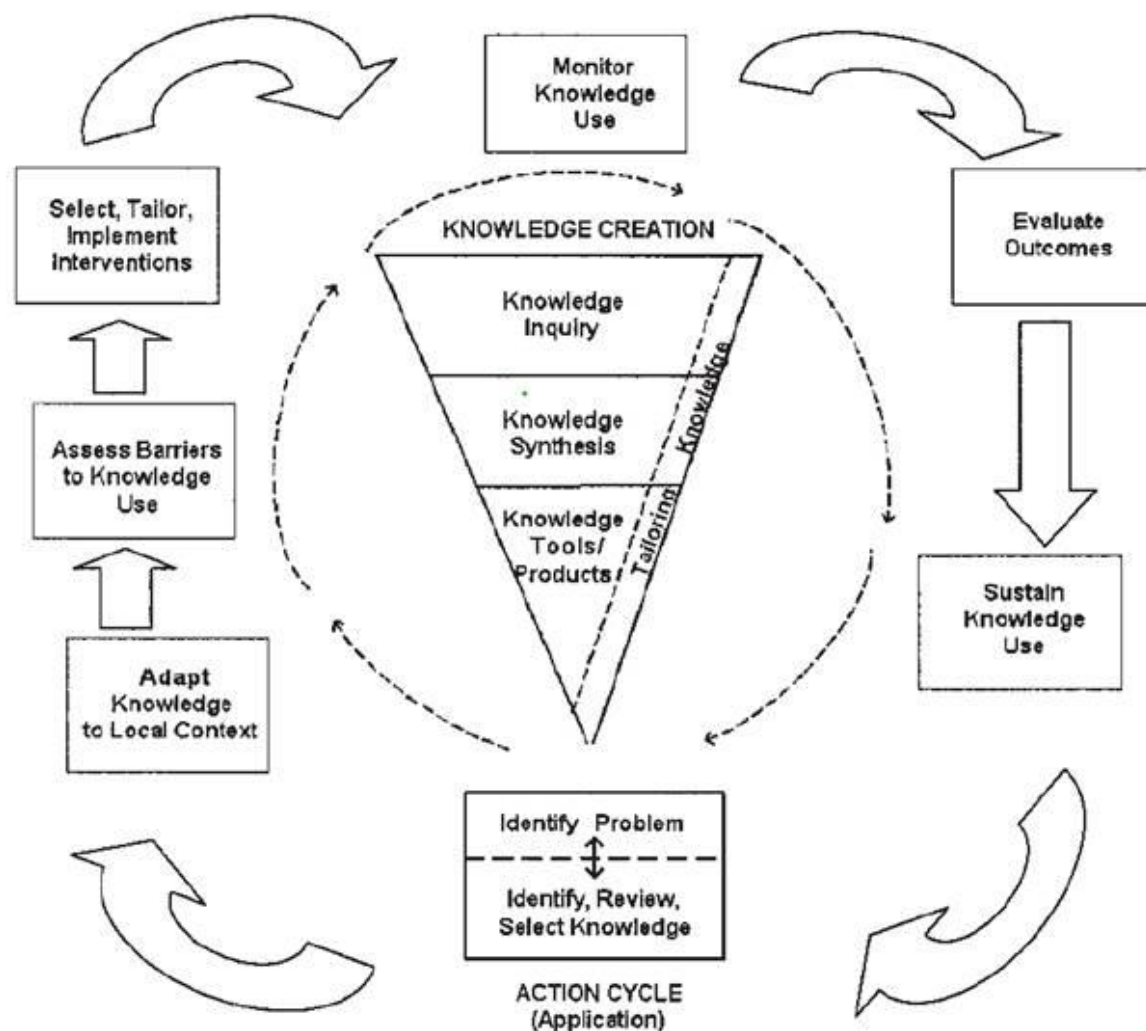


FIGURE 5. KNOWLEDGE TO ACTION PROCESS (GRAHAM ET AL. 2006)

Although this model has emerged from the health sciences and hence is very tilted towards the specialist knowledge domain, many of the processes can be applied to the other domains.

4. We need a better understanding of organizational factors affecting knowledge use

Another framework that we can use to help understand the use of knowledge is the RAPID Framework for Knowledge Strategies which was developed to analyze organizational knowledge strategies and the factors that affect their implementation. Although very much developed within and for an organizational context, the ideas within the framework can be broadened out to other knowledge cultures. The model describes four main dimensions that affect knowledge initiatives: **organizational contexts**, which we can take more generally as the social, political and economic context in which the knowledge is being constructed and used; **organizational knowledge**, or in general, the way in which knowledge and knowledge processes are understood and applied; the **links between knowledge processes and other important structures** and functions; and **external factors**, beyond the immediate boundary of the knowledge process. By looking at the interplay between these factors, one can get a clearer picture of the motivations or de-motivations of knowledge use in a given context.

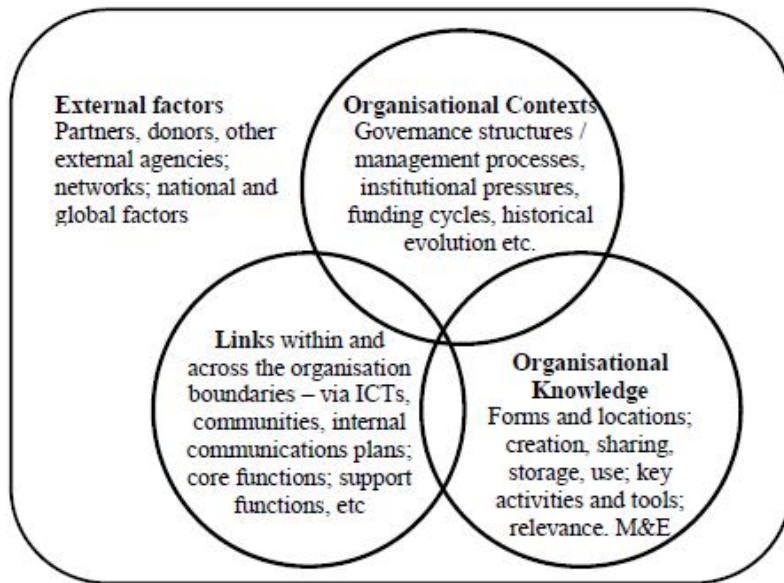


FIGURE 6. THE RAPID FRAMEWORK FOR KNOWLEDGE STRATEGIES (RAMALINGAM, 2005)

5. We need to understand the type of context in which knowledge is being constructed

In his 2002 paper in the *Journal of Knowledge Management*, Dave Snowden presented what he called the third age of knowledge management (Snowden, 2002) which explicitly recognizes the existence of four distinct domains in which knowledge systems can exist; **simple, complicated, complex and chaotic**. In the simple domain, cause and effect is known and thus the knowledge required is ordered and structured and can be easily codified. In the complicated domain, cause and effect is knowable but requires effort; the knowledge required is obtainable but requires expertise and interpretation; specialist but trainable skills. In the complex domain, cause and effect is only knowable after the fact; knowledge resides in social networks, shared beliefs, cultural norms; it cannot be understood without context. Finally, in the chaotic domain, there is no relationship between cause and effect; we cannot know how knowledge can be used, we can only act and see what happens.

The models we have been discussing so far either do not distinguish between these domains, e.g. the KM framework and the Ripple model; or their applicability is constrained to only simple and complicated domains, e.g. SECI and the knowledge to action model. If we are to get an understanding of the effect of knowledge initiatives then we must recognize the existence of each of the domains and treat them differently. Most importantly, because sustainable development implies social change, which is inherently complex when dealing with large social systems, KM4D very often deals with complex situations and so it is vital that we adapt our models, language and approaches to this domain.



FIGURE 7. CYNEFIN FRAMEWORK (SNOWDEN, 2002)

4 Guiding questions in a collective learning inquiry on M&E of KM

Having taken a peek at some models available out there, we have mapped the shadowy areas as well as some of the indicated trails through the M&E landscape. The final piece needed for our journey is a travelling checklist. One needs a good working model of the management of knowledge work for development before hoping to arrive at an appropriate form of M&E of KM. And as signposts that will guide our collective journey, we need good questions to shape our working model.

IKM-Emergent has inferred a number of these guiding questions to make sense of M&E practices aimed at KM for development and to single out the path that we propose to follow in the follow up paper ('Monitoring and evaluating development as a knowledge ecology'):

- How can we better understand the role of knowledge in development interventions? This is the main object of our inquiry in this paper.
- Is the knowledge initiative delivering what it was intended to deliver? How do the strategies employed address issues of legitimacy and accountability of knowledge generation and use?
- What is the theory of change linking knowledge and development work, driving the knowledge initiative?
- What (learning) purposes are sought in the M&E of KM work and what does that imply?
- More specifically, is knowledge seen as an organizational role or as a human capacity? Accordingly, should we focus on 'organizational KM' initiatives, civic-driven KM initiatives or both?
- How can knowledge and the effective management of knowledge-intensive practices contribute to the vision of the initiative, whether driven by a community or by a development agency?
- How is knowledge equal to power for each of the partners and for the beneficiaries/communities of an initiative?
- Is it of any use to focus on specific monitoring and indicator areas and if so, how to choose them?
- Who should be involved in designing, implementing and improving M&E of KM approaches?
- What approaches and indicators can we use that will inform the original purpose and the needs of all the interests involved?

These questions inform IKM-Emergent's approach to monitoring knowledge management and take into account a richer ontological and epistemological diversity than organizational KM models generally promote. IKM-Emergent looks at various domains of KM and learning, as reflected in Figure 8 below and more in depth in the framework it proposes in the follow-up paper.

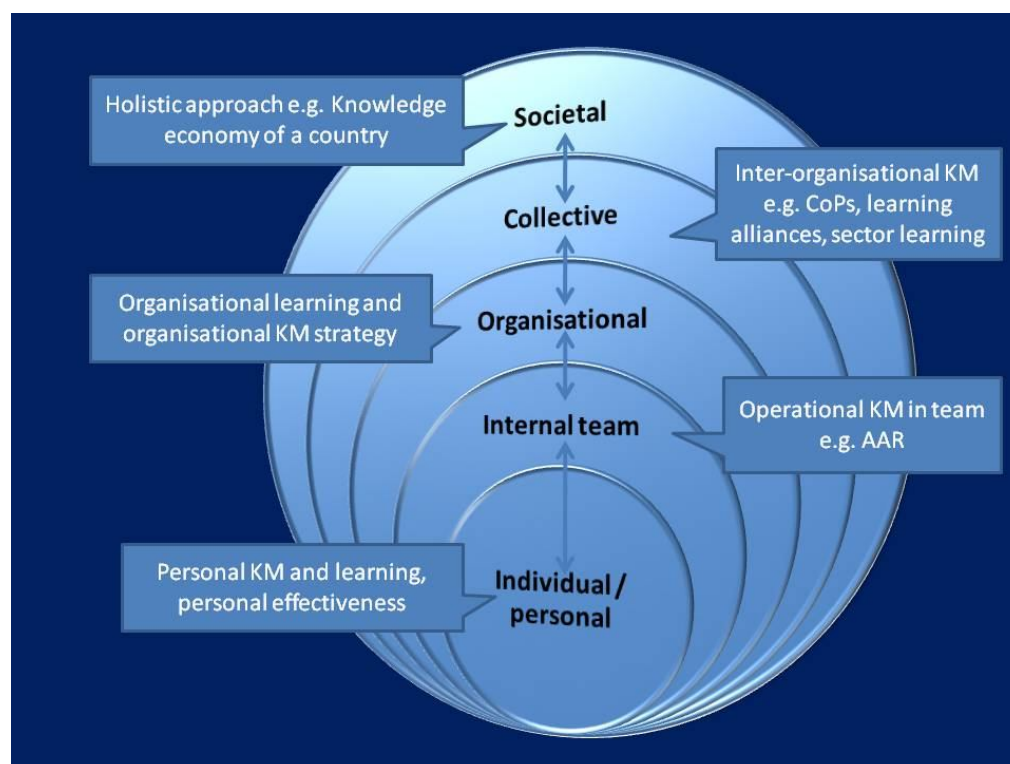


FIGURE 8. THE KM AND LEARNING DOMAINS THAT IKM-EMERGENT CONSIDERS IN STUDIES

5 Conclusions

Throughout this paper we have taken the ‘strong’ view of the monitoring and evaluation of knowledge management. That is, we have assumed that knowledge has its own role as a lead player in the design, practice, and outcomes of development programs and projects. As a lead player, knowledge has its own particular requirements for M&E, and those requirements apply to the initiative as a whole.

We have acknowledged that there is a gap between the knowledge industry supported by organizations and the knowledge needs of their clients. We have also recognized that M&E is often allocated a ‘weak’ position in the design of a development project. That weakness is reinforced by the dominance of a requirement to measure outputs, thus eliminating an understanding of the intangibles of trust, respect, translation, and collaboration, the reason for the journey into social change in the first place.

In reviewing the requirements of M&E for the development sector, we have examined the barriers to effectiveness and the questions that need to be asked. Addressing these barriers and answering these questions requires recognition of the many interests involved, each with their own ideals, sources of information and avenues for action. In particular we have recognized that decisions on the design, conduct and outcomes of a development initiative are determined by multiple knowledges, those of key individuals, the affected community, the specialist advisors, the influential organizations, and the holistic focus of the initiative in the first place.

A review of the models of M&E most frequently applied in the development sector found that these considered single dimensions of an intervention, rather than attempting to provide an understanding of the whole. The concepts of human, structural and relationship capital address some the intangibles but reinforcing the treatment of KM4D as a knowledge industry, with knowledge as a commodity – which doesn’t do justice to our understanding and treatment of this concept. Reliance on indicators,

actions and the ripple effect respectively also add value from one particular aspect of the M&E process.

In summary, few if any of the current approaches to M&E take account of the flows of ideals, facts, ideas and actions that make up the iterative learning cycle of any initiative for social change. Even less are they likely to recognize, much less include, the multiple knowledges involved in the course of a development programme. There is a need to develop a framework which encompasses all of these dimensions. In a follow-on paper titled, *Monitoring and evaluating development as a knowledge ecology*, we discuss what such a framework could look like and propose a collective enquiry approach as a possible way forward.

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