Monitoring and Evaluation in Knowledge Management for Development

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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, will be 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.

Colophon

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Executive summary

Monitoring and evaluation (M&E) of knowledge management (KM) for development is a subject that is affected by four basic problems:

- A lack of consensus and clarity in understanding the terms 'knowledge' and 'knowledge management' (epistemological problem);
- The complexity arising from multiple actors in development, each with their own different world-views, interests, values, power and development agendas (sociological-political problem);
- The large variety, as well as gaps, among the approaches and tools for measuring or assessing the magnitude, utilization and impact of use of intangible assets including knowledge (methodological problem); and
- How to use knowledge to demonstrably create value or other desirable development outcomes (operational problem).

This paper seeks to address these issues. It then proposes a simple but generic KM framework to link KM to performance of a development worker as well as to the development goals of an organization or network. The utility and versatility of the KM framework are illustrated through a variety of examples. An initial summary inventory of M&E tools in KM is drawn up and its uses and limitations are discussed. In particular, the paper reviewed approaches and solutions that had been tried in highly complex and unstable development environments such as in conflict-torn areas, in order to begin the process of understanding if and how KM can be applied under such conditions. A set of guidelines is proposed for applying the framework for M&E in KM for development. The paper ends by proposing a research agenda for R&D in this area of development work to IKM Emergent.

Abbreviations

ABBA	assets-benefits-baselines-action (from Skyrme)
ADB	Asian Development Bank
BPI	business process improvement
CBRM	community-based resource management
CCLFI	Center for Conscious Living Foundation, Inc.
CEO	chief executive officer (or president)
CoP	community of practice
CRM	customer relations management
FPIC	free, prior and informed consent
G	guideline
GEF	Global Environmental Facility
GKA	generator knowledge assets
HR	human resources
ICT	information and communication technologies
IKM Emergent	Information and Knowledge Management Emergent Research Programme
KAM	Knowledge Assessment Methodology
KBD	knowledge-based development
KBE	knowledge-based economy
KM	knowledge management
KM4D	knowledge management for development
KPI	key performance indicators
KS	knowledge sharing
logframe	logical framework
LSS	lessons-learned session
MDGs	Millennium Development Goals
MSME	micro, small and medium-scale enterprise
M&E	monitoring and evaluation
NGO	non-governmental organization
NPV	net present value
OL	organizational learning
p.a.	per annum
PAHRDF	Philippines-Australia Human Resource Development Facility
RA	research agenda
REAP	re-entry action plan
R&D	research and development
ROI	return on investments
SD	sustainable development
SME	small and medium-scale enterprise
STREAMS	Streams of Knowledge, an international NGO on water and sanitation
UN	United Nations
UNDP	United Nations Development Programme
WDO	workplace development objectives

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Part 1. Introduction: context and objectives

This paper is the output of a service contract under IKM Emergent's Project 3.4A (Parallel 2).

Knowledge management for development (KM4D) is becoming more popular as a discourse and as a practice among development workers and development institutions.[1] However, it was observed that –

> *Knowledge strategies generally show [only] promise of future potential – rather than conclusive evidence of success towards development efforts... However, if the value of knowledge and knowledge management within development is to be proven, evidence needs to be available. Evaluation and impact assessment instruments should make the value of knowledge more concrete.*[2]

The task of monitoring and evaluation (M&E) in knowledge management (KM) for development depends on four larger issues. Therefore, this paper must first address them:

- A lack of consensus and clarity in understanding the terms 'knowledge' and 'knowledge management' (*epistemological* problem);
- The complexity arising from multiple actors in development, each with their own different world-views, interests, values, power and development agendas (*sociological-political* problem);
- The large variety, as well as gaps, among the approaches and tools for measuring or assessing the magnitude, utilization and impact of using intangible assets including knowledge (*methodological* problem) at various levels (project, program, organizational and national levels) and in various sectors (corporate, SME, government, development and other sectors); and
- How to use knowledge to demonstrably create wealth or other desirable development outcomes (*operational* problem).

In addition, because KM started from the private sector and not from the academic sector,[3] KM practice had been well ahead of KM theory. Among KM practitioners, consensus on perspectives and methodology remains an ideal.[4] The confusion and lack of consensus in concepts and theories were carried over when KM was also adopted by the development sector. As a field of application of KM, the development sector is more complex than the corporate sector. While the development sector can and should learn from KM experiences in the corporate sector, it may have to evolve its own perspective and tools suited to its own needs and contexts. This paper attempts to contribute to the transfer of KM experiences from the corporate sector as well as to the evolution of new KM perspectives and tools that are more appropriate for the development sector.

This paper will endeavour to (a) articulate the theoretical assumptions and conceptual issues and gaps behind corporate KM practice, (b) clarify these issues and attempt to fill in some of these gaps,

and (c) translate these theoretical assumptions from corporate practice into approaches and useful guidelines applicable to the development sector. This part of the study is deemed essential because M&E in KM must rest on a firm theoretical understanding of precisely how KM supports the achievement of development objectives. Next, the study will endeavour to (d) identify conceptual and operational gaps specifically in M&E in KM4D that require either suggested operational guidelines or further studies or R&D.

Consequently, a set of suggested Guidelines and also a proposed Research Agenda will be developed at the end of this paper.

For these purposes, throughout this paper, observations and conclusions will be marked with 'G #n' inside parentheses ('G' stands for guideline) whenever they lead to useful guidelines for conducting M&E in KM4D. These will be compiled and organized near the end of the paper into a section entitled ***Indicative Guidelines for M&E in KM4D***. Similarly, observations and conclusions that point to research gaps in developing an M&E in KM4D will be marked with 'RA #n' inside parentheses ('RA' stands for research agenda). Near the end of the paper, these will also be compiled and organized into a ***Suggested Research Agenda for M&E in KM4D*** section.

Part 2. Issues surrounding M&E in KM4D

Knowledge Management (KM) is beset by a lack of conceptual and theoretical clarity and consensus among practitioners. The purpose of this section - Part 2 - is to contribute toward clarifying concepts and issues underlying and relevant to the task of M&E in KM4D. New theoretical contributions will also be introduced which could fill some gaps to provide a firmer basis for M&E in KM4D.

2.1 Definition of knowledge

The first cause of common confusion in the field of KM stems from the use of the very common word 'knowledge.' Let us discern how leading KM practitioners use this word, starting with the guru of all management gurus, Peter Drucker:

> *Knowledge is information that changes something or somebody – either by becoming grounds for action, or by making an individual (or an institution) capable of different or more effective action.* (Drucker 1989)[5]

> *[Knowledge is] justified belief that increases an entity's capacity for effective action.* (Nonaka 1994)[6]

> *I define knowledge as a capacity to act.* (Sveiby 1997)[7]

Knowledge is information in action. (O'Dell and Grayson 1998)[8]

Knowledge... should be evaluated by the decisions or actions to which it leads. (Davenport and Prusak 1998)[9]

Knowledge is the understanding of relations and causalities, and is therefore essential in making operations effective, building business process, or predicting the outcomes of business models. (McKinsey & Company 2001)[10]

Thus, among KM practitioners, the term knowledge means capacity for effective action, which includes information, belief and understanding of causalities that are useful for effective action. Thus, information that is not actionable is not knowledge. Knowledge encompasses whatever helps a knowledge worker do his or her job well. Effective action is the operational, empirical or behavioural indicator of the results of correctly applying knowledge in a particular context. It is also commonly accepted that an action is effective if it contributes to the result intended, desired or valued by the knowledge worker or organization. Effectiveness is a quality of action that presupposes that the actor – whether an individual, group, organization, network or national society – is a purposive entity. It can happen that the knowledge worker is both the owner of the knowledge asset (e.g. her skills) as well as the one specifying the purpose of her action.

2.2 Disaggregating knowledge

An instructive KM workshop exercise consists of asking participants the simple question: "What helps you do your job well?" In many workshop instances, participants' answers almost invariably fall along four clusters. The clusters from a sample of 850 answers from 73 participants from different organizations are shown in Figure 1.[11] After clustering and studying the results of this simple workshop exercise, it can be observed that workshop participants are often able to:

- Discern the three components of intellectual capital, namely, human, structural (some KM practitioners call this 'process capital') and relationship capital (some KM practitioners use the term 'stakeholder capital,' while others use the more limited term 'customer capital');[12]
- Learn that knowledge assets is almost synonymous with intellectual capital;[13]
- Grasp how the meaning of knowledge assets differs from the many meanings of knowledge among laymen;
- Realize that intellectual capital is mostly intangible;[14]
- See that both tangible and especially intangible assets contribute to individual and organizational performance, which are for value creation;
- Realize that many accountants hardly ever measure intellectual capital or intangible assets;
- Recognize the link between KM and performance or value creation;
- See that an improvement in performance is the result of good KM and a basis for measuring KM impact (G #1);
- Learn about KM terminologies;

- Recognize that other management disciplines overlap with KM (HR is about managing human capital; ICT is about managing part of structural capital; and CRM or customer relations management is about managing part of relationship capital, which is linked to social capital).

Human Capital
Your character, attitude
Your knowledge, skills, experiences
Your health, recreation
Human capital of your colleagues
Self-motivation

Structural Capital
Access to information (internal)
Business processes
Training, innovation and learning processes
Structures, tools, guidelines and support systems
Vision and direction; fair, caring and empowering policies

Relationship Capital
External linkages: partners, customers, suppliers, government support, Internet
Brand, reputation
Support from peers, teamwork, morale, cooperation and interpersonal relationships
Support, inspiration, recognition and trust from superiors
Support from family, friends and community

Tangible Assets
Technology, equipment, facilities, books and other commercial information
Financial resources
Physical Accessibility
Conducive workplace
Good pay, benefits, incentives, perks

Figure 1. The four clusters that consistently emerge

Note: Sub-clusters highlighted in green constitute a fifth cluster that cuts across the four clusters.

The intellectual capital framework side-steps the issue of whether or not knowledge and tacit knowledge in particular can really be managed – an issue that largely stems from a layman's understanding of the word 'knowledge'. Knowledge among KM practitioners is operationally defined as capacity for effective action. Thus, knowledge-management can be viewed as managing knowledge assets, which in turn are operationally defined along the same value-creation properties of assets recognized by the accounting profession. There are KM practitioners who would rather avoid being distracted by these semantic debates by using the term 'knowledge-based management.'[15]

2.3 Beyond knowledge: other elements that affect performance

The above results reveal other, non-cognitive elements that affect performance:

1. Relationship capital includes entries pertaining to relationships within the organization (or internal "social capital") as well as outside the organization (the usual meaning of the KM term stakeholder capital). Intellectual capital management and common KM practice cover the management only of stakeholder capital (e.g., brand, customer relationships, etc.) but usually not the management of relationships within the organization.

2. Human capital is not only about skills or expertise; it also covers character, attitude, health and self-motivation.

3. Some sub-clusters (those highlighted in green) are actually more affective or attitudinal than cognitive or intellectual factors; they are more about motivational or energy factors than about knowledge factors, including both intra-personal and inter-personal factors. Yet, they seem to be a pervasive (cutting across the four clusters) factor that affects overall work performance. Clearly, 'willing-to' or 'wanting-to' is as important as 'knowing-how' in enhancing work performance. In short, a mainly cognitive framework would be insufficient for understanding and managing human performance.[16]

4. Knowledge assets are only part of intangible factors contributing to work performance (G #2).

5. The descriptive word 'intellectual' in the term 'intellectual capital' therefore fails to encompass all the intangible factors that contribute to more effective action or work performance.

6. About 90% of the answers fall along the intangible assets category. This confirms the observation that value creation has become more dependent on the quantity and quality of intangible assets than on the tangible assets themselves. This is consistent with the common observation that, in the knowledge economy, market values of many corporations far exceed their book value (See Section 2.4 below).

7. Motivational and related factors cut across all four clusters (see Figure 2 below) and account for 44% of the answers; this cluster is a very important one. Managing knowledge must therefore be accompanied by managing motivational factors. KM practitioners have known from experience that incentives (material as well as non-material) are often necessary to make KM programs work.[17] For this reason, 'buy-in' has become part of the KM language. This is also why KM consultants hesitate to come into an organization or company without executive sponsorship or a KM champion from within the executive ranks. KM practitioners also note that knowledge sharing suffers if interpersonal trust is absent. Even the term 'motivational factor' appears inadequate. Therefore, a more appropriately encompassing management model is a mix of knowledge management and management of 'energy.'
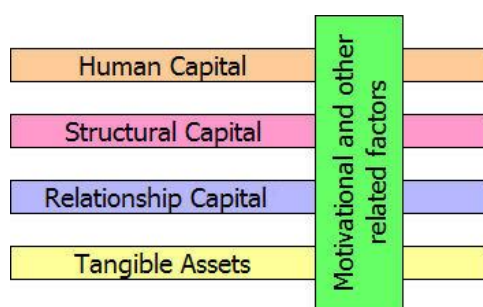
Figure 2. Motivational factors intersect with knowledge assets

To encompass all factors which contribute to work and organizational performance (both of which aim to create value), the words 'intellectual' and 'knowledge' are not adequate. Managing only knowledge is not enough; it must be accompanied by managing motivational or energy factors.

The clusters can be shown using Ken Wilber's categories of knowledge or the Four Faces of Truth[18] (Figure 3) which better captures intra-personal and inter-personal factors – the interior dimensions of knowledge – that contribute to work performance or value creation. The non-cognitive and

motivational factors are indicated in green text in Figure 3 below. It is interesting to note that (a) the 'Three Jewels of Buddhism', namely the *Buddha, dharma* and *sangha,* and (b) the 'Four-Way Test' of the Rotary Club both fall along Ken Wilber's categories. '*Ba'*[19] introduced by Nonaka which is the interpersonal space that facilitates knowledge sharing, falls in the lower left quadrant in Figure 3.

Interior
Interpretive, hermeneutic, consciousness

Exterior
Monological, empirical-positivistic, form

Individual

I
SUBJECTIVE: truthfulness, sincerity, integrity, trustworthiness
Sigmund Freud, Carl Jung, Jean Piaget, Aurobindo, Plotinus, Gautama Buddha

Experiential knowledge
Human Capital (embodied knowledge)
Tacit knowledge: expertise, experience
Self-motivation, personal work ethic
Buddha : enlightened person

It (individual)
OBJECTIVE: empirical truth, correspondence, representational, propositional truth
B. F. Skinner, John Watson, John Locke

Empirical knowledge (objects)
Structural or Process Capital (embedded knowledge)
Individual explicit knowledge
Tangible assets: technology, financial resources
Monetary incentives
Dharma : scripture

Collective

We
INTER-SUBJECTIVE: justness, cultural fit, mutual understanding, rightness
Thomas Kuhn, Wilhelm Dilthey, Jean Giebser, Max Weber, Hans-Georg Gadamer

Shared knowledge
Relationship capital, including Stakeholder and Customer Capital (enculturated knowledge)
Shared meanings from stories
Organizational culture, transactive memory
Trust, teamwork, mutual support
Honor, recognition, non-monetary award
Sangha (inner): brotherhood-sisterhood

It (systems)
INTER-OBJECTIVE: functional fit, systems web, structural-functionalism, social systems mesh
Talcott Parsons, Auguste Comte, Karl Marx, Gerhard Lenski

Empirical knowledge (systems)
Structural or Process Capital (embedded knowledge)
Tangible assets: buildings, infrastructures, factories
Group explicit knowledge: intranet, databases
Codified narratives and stories, process documentation
Workplace conducive for work
Workplace layout conducive for interactions
Sangha (outer): organization

Figure 3. Disaggregating Human Performance Factors along Ken Wilber's categories

It can be observed that there is a need to define/redefine KM terminologies (RA #1). For example, a more all-encompassing word is needed to capture the entire range of factors that contribute to work performance and value creation; the term 'metacapital' had been proposed.[20]

2.4 A Trans-disciplinal megatrend: greater importance of intangible assets

A number of seemingly disparate observations and trends across various disciplines point to a single megatrend, namely, that the contributions of intangible assets (including the intra-personal and inter-personal factors) to value creation have surpassed those of tangible assets.

1. Starting in the 1980s, the book values of corporations around the world constitute an increasingly smaller percentage of their market values.[21] Intangible assets, including knowledge assets, now make up around 80% of the market value of corporate stocks. Knowledge has become the prime creator and repository of corporate wealth.

2. Corporations which excel in managing their knowledge assets (winners of global MAKE Award or Most Admired Knowledge Enterprise) grow two times faster than the average Fortune 500 corporation.[22]

3. The world economy is now creating more wealth from services (69%) than from industry (28%) or agriculture (3%).[23] Even products such as an automobile or laptop contain much embedded knowledge in the form of technology.

4. The human capital of a knowledge worker is what generates his regular income.

5. Remittances from overseas workers now constitute more and more of the wealth creation in many developing countries.

6. Most successful anti-poverty projects are those which leverage on existing intangible assets of communities (Knowledge for Poverty Alleviation model in Section 2.3).

7. Fukuyama observed a pattern; namely, that high-income economies are often also high-social trust societies.[24]

8. The sustainability of community-based resource management (CBRM) projects hinges on intangible factors: a sense of ownership, leadership, cohesiveness of the community, and self-confidence.[25]

9. High trust[26] and managed egos[27] reduce business costs.

10. High social capital was found by the United Kingdom Office of National Statistics to be correlated with better health, improved longevity, better educational achievements, lower rates of child abuse, and less corruption in the government.[28]

Part 3. Causal model

The purpose of M&E in KM is to track whether and how KM is achieving its intended results. Therefore, an M&E procedure must be based on a causal model of how KM produces those results.

From Part 2, it can be posited that the proper goal of KM is to contribute to the achievement of organizational goals or creating valuable results, in other words; to create value. A simple causal model or KM framework is:[29]
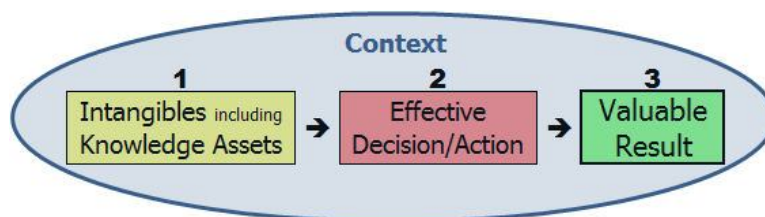
Figure 4. KM Framework (G #3)

Skyrme, after surveying the plethora of KM measurement methods, concluded that these methods can be classified into (a) measuring knowledge assets (corresponds to Stage 1 in the value creation chain), measuring benefits (corresponds to Stage 3), measuring baselines for periodic comparisons of effectiveness (corresponds to Stages 2 or 3), or measuring action or performance (corresponds to Stage 2).[30] A survey of best practices in KM measurements conducted by the American Productivity and Quality Center revealed that most M&E indicators in KM pertain to either value creation (Stage 3) or improvements in performance (Stage 2).[31]

There are many KM frameworks that fail to show how KM (management of 1) is connected to team, organizational or development objectives (pertaining to 3), e.g. those models based on the knowledge development cycle and those based on maturity models borrowed from elsewhere such as the Capability Maturity Model Integration or CMMI in the software industry. Such KM frameworks lead to the launch of KM initiatives that are not linked to strategic business goals in a corporation or to social results in the public or development organization. The knowledge development cycle is a very popular KM framework, but unless it is conceived and applied as a value chain, then the alignment of the KM initiative to a project, program or organization's market or social objectives tends to be vague or taken for granted. Maturity models make the assumption that the capability to innovate is the most mature stage of KM: a fine but non-generalizable assumption. Such disconnected KM frameworks cannot be used as the basis for designing an M&E system that can assess whether and how far KM contributes to larger objectives (G #4).

Many KM initiatives are focused on practices such as knowledge sharing, collaborative learning, intranet and community of practice (CoP). The unstated assumption is that these practices are somehow beneficial. However, unless the link between KM and value creation or organizational objectives is clearly specified, such benefits remain as assumptions and the answer to the question of 'benefits for what?' remains unclear.

3.1 Definition of value creation

In the private sector, value is measured in terms of how much consumers are willing to pay for a product or service, or how much stock market buyers are willing to pay for the stocks of a corporation. The key element is how much a consumer is willing to pay, which in turn depends on her/his level of satisfaction. KM starts with recognizing the internal and external demands of customers. On this criterion hinges many management decisions.[32]

In the public and civil society sectors, the mainstream development value is sustainable development - which can be restated in KM language as: the development of social, natural or economic capital in ways that are not at the expense of each other. For country-level application, the World Bank proposed a four-pillar model of the Knowledge-Based Economy (KBE).[33] The four pillars are consistent with the three categories of intellectual capital. The Asian Development Bank (ADB) subsequently proposed a broader framework, marrying KM with sustainable development, and came up with Knowledge-Based Development (KBD).[34] However, the ADB has not come up with any similarly practical indicators (RA #2).

Communities and social groups are the primary actors in, and the ultimate beneficiaries of development. KM4D should start with recognizing the needs and values of a community or social group (G #5). However, one problem with this is that there are instances when two social groups value opposite results.[35] The resulting differences can lead to conflict – a sign of eroded or damaged social capital. When conflict erupts, development can hardly proceed. Social capital can be double-edged:

some social groups achieve unity among insiders (improving 'bonding' social capital or exclusive social capital) by cultivating greater enmity against outsiders or enemies (worsening 'bridging' social capital or inclusive social capital).[36] Another problem is the disjunct between what community members truly want, and the development agent's notion of what the community members want.[37]

3.2 Attribution and separability of impact

Monitoring and evaluation (M&E) in KM4D is embedded in the larger issue of M&E of intangibles and the management of intangibles for development.

In 1996, World Bank President Wolfensohn announced before the world's finance ministers that the World Bank is not only a lending bank but also a 'Knowledge Bank.' Of course, knowledge assets had always been creating value for the Bank even before 1996; but World Bank managers formally recognized this fact only after Wolfensohn's announcement.

Organizations and projects are creating value from their intangible assets with or without any conscious or formal KM strategy/program. Their managers are managing their knowledge assets but they do not call what they are doing 'knowledge management.' They use other terms such as 'human resource management,' 'succession planning,' 'replication of best practice,' 'role-based portal,' 'work templates,' 'mentoring,' 'customer relations management,' etc. They are doing what may be called 'unconscious KM' or management without a knowledge-based framework.

Similarly, the successful performance of a development project is attributable to the effective use of knowledge assets, even if its project managers were unaware of KM or were not consciously applying a KM framework. If a project manager formally adopts KM or hires a project KM officer, what does 'M&E in KM' mean? The KM officer would likely want to justify his/her job by tracking only the incremental improvements as a result of the new KM program (value added by 'conscious KM' over 'unconscious KM'). But if a project manager is aware that intangible knowledge assets are creating value, he/she would prefer to track how all intangible assets are deployed and how they could all together be managed more effectively. The 'M&E in intangibles' makes more management sense than just 'M&E in KM' (G #6).

3.3 Interactivity and context

Knowledge Management (KM) is not just about instruments and processes to provide the right knowledge at the right time to the right user. Since there are three types of knowledge, or four if technology (embedded knowledge) is brought in as an additional type, then KM is also providing the right combination of these types. An examination of the following illustrative examples of ineffective action can demonstrate this principle.

1. An X-ray film enables a radiologist to make a better diagnosis, but it is meaningless to a plant engineer. Specifications of a turbine enable a plant engineer to make design decisions, but they are meaningless to a radiologist. The right skill must go with the right information to bring about effective action;

2. A best practitioner fisherman tries to replicate his best practice in organizing other fishermen to set up a marine protected area in another coastal community. But he cannot duplicate the success he had in his home community. The right procedure may not work equally well in a different social or relational context;

3. A winning business process improvement (BPI) team has been very effective in solving problems together and thus making many improvements over the last two years. After a team member transferred to another team, she found that she could not work as well with her new team in similar problem-solving sessions. Having an effective thinking process together depends on good or well-established relationships; disruptions in the relationships reduce the effectiveness of a team. The ease with which knowledge can be retrieved within the context of team members who know each other's thinking styles and specializations well comes from transactive memory,[38] which has been shown to be correlated with work performance in teams;

4. Computers of the same brand and specifications were donated to school librarians in different locations in the same country. After three years, some were working while others were not. The differences were found to be due to differences in the availability of spare parts and skilled repairmen in the locality. The effectiveness of a technology depends on the socio-economic context within which the technology is embedded;

5. An expert senior engineer who will soon retire was asked to take in an understudy who was scheduled to replace him after he had left the company. They were piloting a knowledge transfer process designed by the HR Director. The senior engineer and the understudy could not work together due to differences in their working and thinking styles - something the two were largely unaware of. Frequent disagreements slowly led to an erosion of mutual trust. After several months of trying, the senior engineer submitted a request for a new understudy. The effectiveness of coordination depends on both the right procedure and the right relationship. In this case, the chosen knowledge transfer process failed to consider differences in styles (incomplete procedure), which then led to a worsened relationship.

The implication is that effective action in any particular work context comes from seeking the appropriate mix of human capital, structural capital, relationship capital and technology for a particular context (G #7).

Thus, the impact of KM is attributable to the combination of knowledge assets, and not to any single knowledge asset. If knowledge asset A is added to an existing mix of knowledge assets B and C, the incremental improvement in productivity may be mistakenly attributed to A alone when in fact it was due to the interactive combination of A, B and C.

For example, let us say that a self-customizable and role-based portal was introduced in an organization's intranet. As a result, the time spent in hunting for information was reduced by an average of 1.2 months per year per employee. Can it be concluded that the company savings amounting to 1.2 months of payroll every year was solely attributable to the new portal? Maybe not. More precisely, the cost savings was attributable to the interactive or joint effect of:

- Technology (the new portal software)
- Structural capital (the configuration of each portal and the use of knowledge taxonomy tailored to each employee's functional role)
- Human capital (the skills of the employee in customizing and utilizing his or her own portal)
- The empowerment that accompanies a company policy of training and encouraging each employee to customize/personalize his/her own portal to suit his/her specific needs which enhances motivation that ultimately contributes to the effectiveness of the portal.

3.4 Multiplicity of development actors, their world-views and values, and power relations

KM4D can be seen from different viewpoints:

Level 1. Community viewpoint
In the Philippines, CCLFI.Philippines and its partner NGO – the Peace and Equity Foundation – scanned and studied ten best practices from more than 950 anti-poverty projects.[39] Why were they successful?

The answer surprised us: the communities concerned were successful because the projects leveraged on the wealth of intangibles that the poor communities already had (G #8):

- Network of relationships (social capital);
- Access to natural resources (natural capital + social sanction);
- Dedicated leaders (human capital);
- Useful linkages outside (stakeholder capital);
- Collaborative practices (cultural capital);
- Indigenous knowledge (intellectual capital), etc.

The greater contribution of intangible assets is true both for community development as well as for corporate profit-making.

Many local communities are poor only in tangible assets – they are wealthy in intangible assets. People who call them 'poor' are those whose development paradigm is based solely on financial or material (i.e. tangible) mental models.

The research also opened a new perspective: KM4D is not just a matter of facilitating information/knowledge flows – this is a mental model that belies a development practitioner mindset, which is basically an outsider perspective. If an insider or community perspective is taken, KM4D is suddenly different: it is now a process of recognizing, appreciating and leveraging on the wealth of intangible assets that a community usually already has. New tools are needed for a participatory and appreciative community self-assessment of their intangible assets, in preparation for designing projects to address community needs in a manner that leverages on their unique mix of tangible and intangible assets (RA #3).

From this community or insider viewpoint, the concerns are:
- Identify and leverage on strong intangible assets of the community;
- Identify and neutralize weaknesses and risks in community intangible assets;
- Identify, select and design projects that address priority community needs and leverage on community intangible assets;
- Identify with whom and how to best link up with stakeholders who in turn can best support their projects;
- Identify policy and systemic gaps that handicap local communities,[40] and advocate corrections and solutions to the national government;
- Embed self-learning processes in community projects.

Monitoring and evaluation (M&E) in KM4D at this level refers to tracking and evaluating community intangible assets: those existing before a development project, those leveraged or used in the project, and what the project brings in from - or enables access to - the outside. It is M&E in community KM, or better, it is M&E of community tangible and intangible assets and their management (G #9).

A special case is KM by MSMEs (micro, small and medium-scale enterprises); this is a new frontier, where the main issue is how to translate or scale down the successful KM practices in the larger corporate sectors to the MSME level. Note that KM by MSMEs (RA #4) is not the same as KM for MSMEs which is a concern of development workers and development institutions (Level 2). MicroLINKS[41] is an example of the latter.

Level 2. Development workers' and development institutions' viewpoints
From studies of successful local development projects in the Philippines, facilitating information/knowledge flows to/from various development actors[42] did not emerge as a success factor. Yet, this is the common framework in most KM4D discourse. Knowledge sharing is an issue more at this level than at the community level. One sees this assumption cutting across various concerns voiced in the KM4Dev community:

- Provide the development worker with the right information/knowledge at the right time;
- Facilitate cross-project learning;
- Collect and share good/best practices and tools;
- Provide local communities with the information, knowledge and technologies they need;
- Set up knowledge-sharing communities;
- Facilitate organizational learning;
- Learn from project successes/failures to design/innovate better development projects and programs.

These basically outsider concerns are patently different from the community or insider concerns in Level 1.

Monitoring and evaluation (M&E) in KM4D at this level refers to tracking and evaluating the management of knowledge deployed by development workers and development institutions. It is M&E in organizational KM, program KM or project KM. Here, an ongoing R&D task is borrowing and adapting workable M&E of KM approaches from the private sector to the development sector (RA #5).

A difference of interests obtains between development practitioners and development institutions, particularly donor institutions. Post-project evaluations are often donor-driven; their purpose is to check if project outputs correspond with intended project objectives. Development practitioners, however, have other interests, such as gaining knowledge, insights and lessons to help them become better development practitioners. The difference between the two can be summarized as the difference between project evaluation and a Lessons-Learned Session (LSS). A more comprehensive post-project evaluation should satisfy donor requirements as well as empower practitioners: both vertical and horizontal learning should take place (G #10).

	Traditional Project Evaluation	Lessons-Learned Session
Purpose	To assess outputs against objectives	To document learning and know-how gained
User	Administrators, Donor/funding agency	Practitioners, people's organizations project staff/implementors
Focus	Outputs, outcomes, impacts	Workable tools, templates, processes, useful linkages
Learning	Vertical feedback: administrators, donors and funders learn	Horizontal feedback: field practitioners, project staff learn
Dynamics	Donor-driven or top-driven, preserves top-down divide	Empowers practitioners, mutual learning across top-down divide
A Tool of –	Project management	Knowledge management

Figure 5. Project evaluation versus Lessons-Learned Session (LLS)

Mutual learning was recommended by Ramalingam among the donor, the development agency and the local community to bridge the power, knowledge and cultural gaps amongst them.[43] A Lessons-Learned Session (LLS) is a tool for mutual learning. The tool is useful for donor and executing organizations which are ready to allow more inclusiveness, responsiveness and respect for knowledge diversity in its development policy and practices.

Level 3. Local and national government viewpoints

At the national level, the KM4D discourse centres around the search for appropriate government strategies, policies and programs to enhance national intellectual capital/assets and to use these assets for national development, including how to capture opportunities in the emerging global knowledge economy. The most well-known effort in this direction is led by the World Bank using its Knowledge-Based Economy or KBE model, and its accompanying quantitative M&E system of indicators, namely, the Knowledge Assessment Methodology or KAM and the Knowledge Economy Index. The Asian Development Bank attempted to improve on the KBE model, which is focused only on the economic dimension, by proposing a Knowledge-Based Development or KBD model which seeks to marry the intellectual capital framework from KM with the sustainable development framework spearheaded by the UN primarily via the 1992 Rio Summit. Both KBE and KBD borrow and apply the three types of knowledge assets from the intellectual capital school of KM: human, structural and relationship capital.

Knowledge Management for development (KM4D) among local governments is another new level of discourse and programmatic attention. In the Philippines, this is taking the form of KM slowly being adopted within and across local governments, as well as by the Local Government Academy; the training and R&D arm of the Department of the Interior and Local Governments. The World Bank had supported a successful knowledge-sharing program across Philippine cities and among city mayors, called the City Development Strategies (CDS) project.[44]

In places where sub-national and trans-national political factions are engaged in conflict (e.g., the Congo in Africa, Mindanao in the Philippines, the Afghanistan-Pakistan tribal border areas), 'peace and development' is the dominant discourse. Using KM language, their main task is how to create or strengthen inclusive 'bridging social capital' across warring social groups and how to reduce the type of 'bonding social capital' within each group that exclusively cultivates internal social cohesion at the expense of social cohesion across the wider national system. Here, development can proceed only after a minimum threshold of peace (e.g., a ceasefire and political negotiations/agreements) has been set in place.

Note that power – the power to influence what eventually happens at the local level and the power to set policies, funding priorities, and an agenda for development discourse – is least at Level 1 and greater at Levels 2 and/or 3. Note, too, that the term 'KM4D' is part of the language of Level 2 discourse.

Part 4. The KM framework and its M&E applications

The KM framework described in Part 2, section 2.5 can provide a more solid foundation for designing M&E systems for KM4D or, more broadly, for managing intangibles for development. Part 4 shows examples of how the causal KM framework is applicable to a wide variety of situations of managing intangibles and their corresponding M&E. The KM framework is both parsimonious and versatile.

Example	Purpose	M&E Approach
4.1 High-octane KM	Linking KM to organizational goals	Performance metrics (2) and output or outcome measures (3)
4.2 Valuation of intangible assets	Measuring the value of inputs	Regular income generated (3)
4.3 Organizational learning (OL)	Estimate benefits of OL	Regular income generated (3)
4.4 ROI of training	Link training design to workplace development objectives	Linking 2 to 1; measuring improvement of performance (2)
4.5 Value of networks and relationships	Linking an intangible trust to business outcomes	An intangible (1) results in either costs or benefits (3)
4.6 Cost of ignorance	Showing the value of knowing bad practice or better practice	Cost of mistakes (3) or benefit forgone (3)

4.1 High-octane KM: a simple way to show the value of KM

In September 2005, the Executive Director of STREAMS asked CCLFI for assistance. STREAMS Board members flew to Manila and are meeting together with an Observer from their major funding sponsor, the Netherlands Government. She asked, can we convince her Board that KM is important?

The workshop consisted of asking a series of three questions. The first question was addressed to the Chairwoman of the Board, who is also the CEO of the Water Research Commission of South Africa.

> Question 1: *To an outsider like me, can she please tell me in a few brief sentences what are the valuable development results their network wants to achieve?*

> The answers were written in key phrases on a whiteboard; the result was 2-3 key outcomes. Next, metacards (similar to Post-Its) and felt pens were distributed to the Board members including the Observer, on which they could write down their answers to the next question.

> Question 2: *What programs, functions or projects of your network and its members are most important in achieving those development results?*

> We posted and clustered their answers on the whiteboards. After about 20 minutes of discussion, we picked out a very important function or program. There was much debate about which one was the 'most' important one; so we settled for 'a very important' program.

> Question 3: *What skills, information/knowledge, support systems and relationships are most important in implementing this program well?*

> Again, we posted and clustered their answers. We then discussed the results and after about 30 minutes arrived at a priority shortlist of Generator Knowledge Assets or GKAs.

Finally, we concluded, "according to your collective judgement, the successful performance of your organization hinges on how well you manage these few Generator Knowledge Assets."
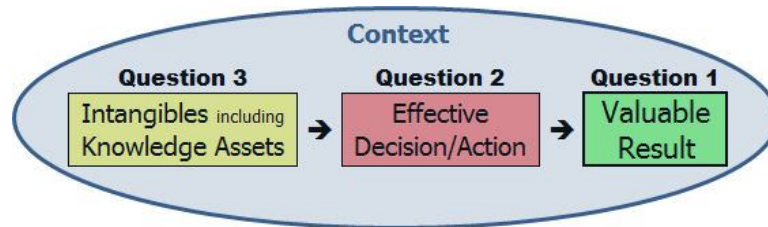
Figure 6. High-octane KM: working backwards to identify Generator Knowledge Assets (GKAs)

Within about one hour, the Board members saw: (a) the importance of KM to their organization, (b) the link between KM and their organization's goals, and (c) that focused or selective KM (managing only GKAs) is less expensive.

Managing only the GKAs is high-octane KM (G #11) or lean and mean KM. The impact of managing GKAs can be monitored by means of performance metrics (e.g. KPI or key performance indicators) at Stage 2, and the extent of achievement of intended results at Stage 2 can be evaluated through output or outcome measures.

High-octane KM is an example of demand-driven KM, because the KM initiative follows on from what is needed most by an organization.

4.2 Valuation of intangible assets

In the private sector, market value is assigned to tangible and/or intangible assets equivalent to the earnings they can generate. Using the KM framework for visualization in Figure 7, the value of an asset (Stage 1) is the sum of the present value of all future earnings (Stage 3).

Kiyosaki defines an asset as anything that yields regular income. Here is a list of tangible and intangible assets that generate regular income (illustrative examples are shown in quotations). 'Metacapital' is a generic term proposed for the wide varieties of capital forms.

- Natural capital: *"I sell 2 truckloads of mango fruits yearly from my 20 mango trees."*
- Technology plus structural capital: *"We patrol our Marine Protected Area against poachers because it regenerates our fish stock."*
- Social capital: *"When I was a child, my godfather gives me a cash gift every Christmas."*
- Customer capital: *"My customers keep coming back and boost my sales because they trust me."*
- (Negative) psychological capital: *"That cooperative has been losing money because of its corrupt manager."*
- Human capital: *"The Philippine economy gets $15 billion yearly remittances from its overseas workers."*

- Public infrastructure: *"The new road enables me to sell my farm products to the town centre every week."*

- Human capital plus access to cultural assets: *"My part-time job is as a French and Niponggo-speaking tour guide in Bohol province."*

- Cultural capital plus indigenous crafts: *"Our Moriones* [a local cultural show] *tradition boosts our tourist income every March."*

- Financial capital: *"The trust fund yields $10,000 every year."*

- Access rights to natural resources through a formal agreement: *"Our agreement with the government gave us usufruct rights over our ancestral domain."*

- Traditional access rights: *"I gather and sell firewood from the communal forest every Saturday."*

- Indigenous knowledge: *"Knowing the forest intimately enables the Ayta* [an indigenous community] *to survive there for months."*

- Structural capital: *"My PowerPoint presentations attract more clients to my workshops."*
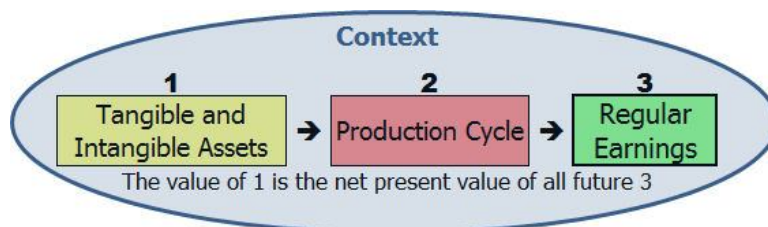

Figure 7. Valuation of an asset

4.3 Estimating benefits from organizational learning

One of the poll questions to participants in KM workshops by CCLFI.Philippines is "Estimate what percent of your total knowledge (now) came from your formal schooling." Almost all answers are below 50%. The average hovers around 20%, depending on the ages of the participants. Then the next workshop question is "Where did the 80% come from?" Their answers reveal three major sources:
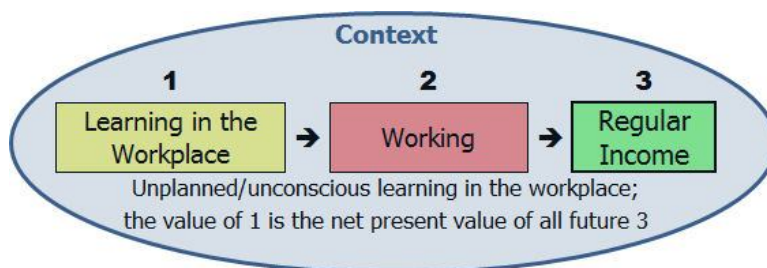
1. Learning from doing or working
2. Learning from self study and reflection
3. Learning from interaction or sharing with others.

While so many resources and so much time, planning, systems and institutional support systems were spent to gain 20% of peoples' knowledge, they got the remaining 80% largely without planning, without technology and without systems and institutions – it was gained quite informally and unconsciously. Unconscious learning happens to many most of the time. If learning while doing/working had been systematic and deliberate, the percentage would have been greater - the rationale for organizational learning and knowledge sharing (OL/KS).

The causal sequence goes like this (Figure 8):

Knowledge worker learns (often unconsciously) while working →

Her knowledge and expertise grows →

Her salary expectation (and also the market value of her expertise) increases →

Increase in her prospective future incomes.

An indicative or order-of-magnitude economic value of OL/KS can be estimated. The estimate is made by computing the net present value (NPV) of future incomes generated by the possession and use of skills.

Figure 8. Benefits from Learning from Doing/Working

Let us use a reference case: a 40-year old knowledge worker, with 20 years of working experience and earning $120,000 a year. She is able to command this salary level based on her excellent 20 years of work experience and track record.

Assuming she looks forward to 25 more years of productive employment, an estimate of her human capital at age 40 is the present value of her income stream over the next 25 years. Assuming a flat salary profile (a deliberate underestimate) to age 65, 10% of gross pay going to cost of basic human necessities, and a discount rate of 5% p.a. then her human capital is worth over $1.63 million today. If she acquired 80% (from the poll above) of her expertise through work experience over the last 20 years, then the 20-year unconscious learning was worth $1.3 million. The remainder of $0.33 million is the money value of her formal education.

Assuming a straight-line learning curve from age 20 to 40, then at age 40 the annual or incremental value of her largely unconscious learning from doing/working is about $65,000. That is over 6 months' worth of salary. For every $4 she was paid by her employer, she gained $2 worth of unconscious learning from doing/working.

If she, or better still, if the entire organization shifts to a conscious or programmatic OL/KS learning mode, how much would this figure increase compared to the unconscious learning-from-doing mode? Let us assume 50% for the sake of illustration. This means that conscious OL/KS adds another $1 worth of learning for every $2 worth of unconscious learning. Then the yearly incremental value of conscious OL/KS to the knowledge worker would be equivalent to 3 months' salary, and an estimate

of the yearly benefit of a mature programmatic OL/KS to an organization could be 3 times its monthly payroll or $1 benefit for every $4 that goes to the payroll budget.

4.4 Ensuring ROI of Training

A best practice in training framework is that which was developed by the Philippines-Australia Human Resource Development Facility (PAHRDF) for its training projects for Philippine government agencies:
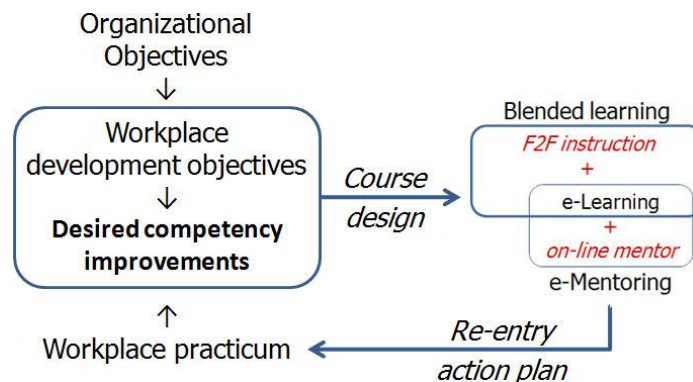

Figure 9. PAHRDF Training Model

The key elements of this approach are:

- Training is customized; training design is driven by workplace development objectives (WDO), which in turn are driven by organizational goals and objectives;
- Desired output of training is a re-entry action plan (REAP) for each participant's workplace practicum;
- Desired outcome of training are improvements in competencies via REAP;
- Training delivery is through face-to-face training (usually 1 week) followed by face-to-face or blended e-coaching (usually 1-3 months);
- If the causal link between WDO and corporate targets is clear and quantifiable, then the ROI of training can be computed (G #12). Figure 10 shows the causal chain.

The caveat pointed out in Part 2, section 2.8 applies: the benefit is due to the interactive and joint effect of the training intervention and other pre-existing knowledge assets such as the technical preparation of the participants, their attitudes, policies affecting the workplace, etc. (G #7)
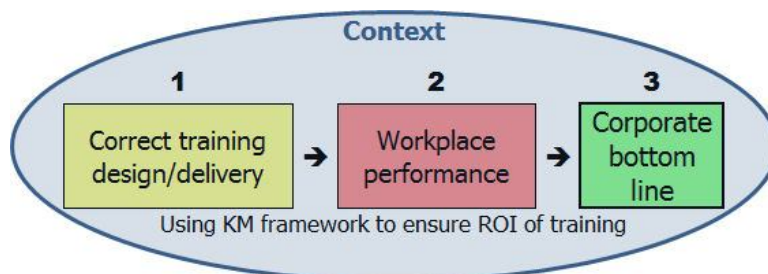

Figure 10. Causal chain in computing benefit from training

Impact assessment is straightforward if the training intervention rests on a solid causal model linking training to business results. ROI of training is less a methodological issue and more an issue of correct training framework/design. According to Phillips and Stone, the trainees' evaluation of training is inferior to the measurement of impacts in the workplace and in business results.[45] Accenture demonstrated the ROI of training by statistical regression of training against business impacts.[46]

4.5 Value of relationships and networks

Social capital can contribute to value creation. The following examples demonstrate that networks, connectivity or relationships create value. The last examples show that Internet-based networks, like telecommunications and media networks, are commercially valuable and are now also bought and sold.

- The explosive growth of the Internet and e-commerce are evidence of this.
- Before and even after GATT, regional common markets were proliferating: European Union, ECOWAS, MERCOSUR, GCC, CACM, AFTA, NAFTA, APEC, SARCC, SADC, EAC, ECOW, SAPTA, CARICOM, CER, Andean Community, etc.
- New social networks and practices are emerging, together with a slew of new terms: 'crowd sourcing,' 'peer production,' 'collective intelligence networks,' 'massively distributed collaboration,' 'wiki and collaborative authoring,' 'prediction markets,' 'open source communities,' 'weapons of mass collaboration,' 'peering,' etc.
- Networks are being bought and sold: Yahoo bought Flickr for $30 million; News Corp. bought Myspace.com for $580 million; Google bought YouTube for $1.65 billion.

The secret of success behind the large varieties of fast-emerging network-based business models are the following four principles:

- Positive network externalities:[47] additional network members create potential benefit to all network members;
- Metcalf's Law:[48] the value of a many-to-many network is proportional to n^2, where n is the number of network members;
- Information and knowledge are shareable but hardly excludable resources: copying and sharing to many others does not diminish the utility of the original to the sharer; and
- Trust between members.

Conversely, a lack of trust can destroy value. Covey showed that when trust goes down, the speed of work performance and transactions goes down, and business costs go up. Trust and goodwill are among the most important intangible assets for good business. Using the KM framework again:
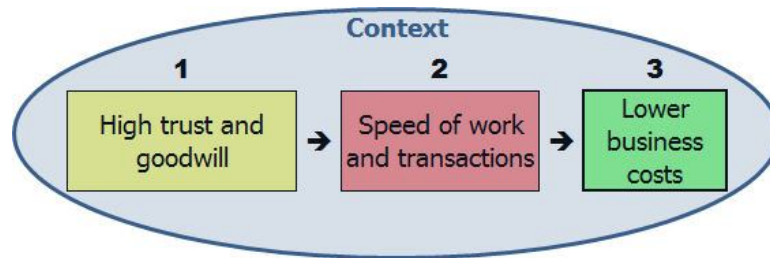
Figure 11. Economic impact of trust

When an organization is plagued by rivalry and factionalism, its performance suffers. Bad relationships and distrust can destroy value. Trust underpins relationship capital, one of the three components of the intellectual capital of an organization.

When a nation is at war with itself, which is happening in Congo, Georgia, the Philippines, Somalia, Sri Lanka and many other places, millions and billions of dollars are diverted away from production to maintain armed forces. GNP suffers. This is negative social capital. Fukuyama observed that developed economies are also societies characterized by high social trust. Trust and goodwill are among the most important intangible assets for peace.

4.6 Cost of two types of ignorance

In knowledge management, replication of best/good practice is very common. However, knowing what not to copy/do is as useful as knowing what to copy/do. Yet we hardly see any sharing of worst/bad practices.

From a KM perspective, there are two types of ignorance:

Type 1 Ignorance, or ignorance of what does not work, can be costly. We will label knowing what does not work as 'obverse knowledge.' Ignorance of obverse knowledge can result in repeating mistakes, costly rework, wasting resources, and destroying value. This is the first type of ignorance. The expected benefit of obverse knowledge is the avoided cost multiplied by the probability of doing what does not work in the absence of obverse knowledge. Individuals learn from their own mistakes and do not repeat them, so the cost from the first type of ignorance is shouldered by organizations; it arises from individuals' unwillingness to acknowledge and share what does not work to other users in the organization. Repeating mistakes is a sign that an organization needs KM. Using the same KM framework, the cost of Type 1 ignorance is shown in Figure 12.

A signal that a corporation must stop doing something is when its market value dips below its book value; then it makes more financial sense to liquidate the company immediately than to continue operating. If the owners would rather continue operating their corporation, then KM to help such a corporation is KM to identify what is destroying value. That corporation needs obverse KM to identify what business process they need to change or stop altogether.
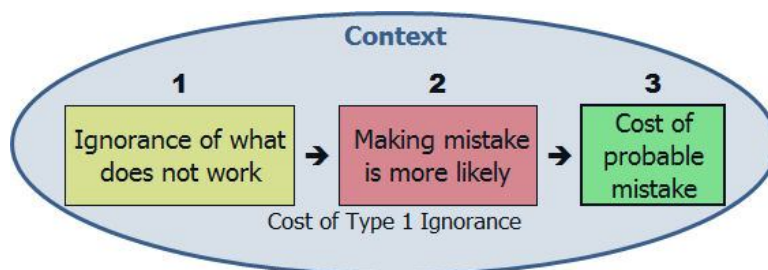
Figure 12. Not knowing what does not work could be costly

Type 2 Ignorance is ignorance of what works better. Because there is almost always room for improvement or innovation in anything we do, this is the most common or widespread type of ignorance. Hence it is also the more costly overall. The cost of this type of ignorance is the benefit foregone by all users who did not know what works better. Again, using the same KM framework:
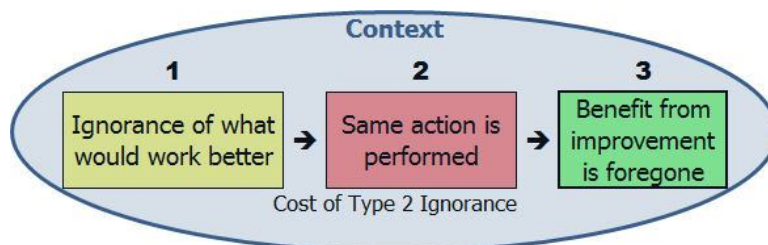
Figure 13. Not knowing what works better is costly

The company foregoes benefit if it does not know what improvements to make in its business processes, or if it does not know that a new, redesigned product would attract many more customers. The foregone benefit can be very substantial if the corporation did not know that it could well adopt a new and better business model; the impact of this strategic ignorance materializes as soon as a competitor discovers and adopts the new business model ahead of everyone else.

The common reason for the second type of ignorance is simple: company executives are often not aware of all its business assumptions. They are unaware of some of their limiting mental boxes and blindfolds, or they are using a framework that prevents them from seeing what is right in front of them. Blindfolds preventing top executives from discovering a superior alternative business model are very costly blindfolds.

Part 5. Deconstruction and reconstruction of M&E for KM4D

5.1 Inventory of existing tools in M&E in KM

The KM framework provides categories for classifying tools in M&E in KM that can be distinguished according to their stage in value creation (Figure 14): knowledge assets available (supply), action or user of knowledge (demand), and results of the application of knowledge (output and outcomes). The tools can be broken down further according to the three levels of users described in Part 2, section 2.9

plus two additional users: networks and the corporate sector. The inventory entries below are based only on the author's personal and professional experiences in KM practice; the inventory will have to be continually expanded and updated based on other KM practitioners' experiences and on the continuing R&D and evolution of the KM discipline (RA #6).

		Stage in Value Creation		
		1. Knowledge and other Intangible Assets (supply side)	2. Action or User of Knowledge (demand side)	3. Desired Results (outputs, outcomes)
User Groups in the Development Sector	Community, MSMEs	*Storytelling, narratives,* Appreciative inquiry of local assets, Participatory assessment	Action indicators in logframe, Productivity of MSMEs, *Storytelling, narratives*	*Post-project success stories,* Project targets achieved, Revenues of MSMEs (micro, small and medium scale enterprises)
	Development Worker, Development Agency	Knowledge mapping/inventory, Social network analysis, Lessons-learned session, Portal/content statistics	KM audit, Key performance indicators, Lessons-learned session, Hits in webpages, Action indicators in logframe	*Post-project success stories,* Stakeholders' satisfaction scores, Project targets achieved, Lessons-learned session, Post-project knowledge capture
	Local and National Governments	Knowledge taxonomy, Portal/content statistics, World Bank's Knowledge Assessment Methodology (KAM)	KM audit, Key performance indicators (KPI), Productivity/output measures, Hits in webpages, Services rendered	Scores in key result areas, Stakeholders' satisfaction, scores, Feedbacks and polls
	Networks	*Blogs,* Number of files uploaded, Size of portal content	Communication indicators, Number of postings, Participation indicators	Increase in membership, Feedbacks from members, Solutions/answers
	Corporate Sector	Intellectual capital accounting, Knowledge taxonomy, Knowledge mapping/ inventory, Expertise directory	KM audit, Key performance indicators, Productivity/output measures, Hits in webpages, Balanced Scorecard, Malcolm Baldridge criteria, Number of tools re-used	Customer satisfaction scores, Return on investment (ROI) of training, Gross sales, Market value of stocks, Impact of specific action

Figure 14. Inventory of M&E tools in KM

KM tools under the '*1. Knowledge and other Intangible Assets'* column include those for monitoring assets, which by definition are those that contribute to capacity for effective action (individual employee level) and to value creation (organizational level). These tools monitor knowledge supply or input. KM is good KM if the result is better performance: more efficient, promptness or less time consumed, fewer mistakes, better quality, etc. The KM tools under '*2. Action or User of Knowledge'* address monitoring of performance. Ultimately, the criterion for good KM is greater effectiveness, and effectiveness is evaluated according to desired results. The tools under '*3. Desired Results'* are examples of how results are assessed. Note that effectiveness of an action depends not only on good KM but also on the choice of the right action, otherwise it would be a case of 'doing the wrong thing well.' In other words, the nature of the action 2 must be aligned with the desired results 3. Therefore a process audit ("Is it the right action, or how can the action be improved?") must precede a KM audit ("How to perform the action well or better?").

Interpretation of M&E data using tools under '*3. Desired Results'* is subject to the limitations and problems of attribution and separability of impact (Part 3, section 3.2) and the confounding effect of interactivity and context (Part 3, section 3.3).

The red entries are quantitative, the blue ones are qualitative, and the rest are mixed. The upper right cell highlighted in blue is expanded in Figure 16. Because the community is the end-user of

development services, some tools in this cell (e.g. storytelling) serve a double purpose: for M&E during and after a project as well as for pre-project assessment as input to project design. KM tools for the latter purpose are detailed further in Figure 15.

Some value creation measures were: improved customer satisfaction scores, an increase in sales leads, and an increase in sales and revenues. Some performance measures used were: reduced production downtime, fewer design errors, a reduction in work cycle times, a reduction of raw material inputs, and cost savings from adopting best practice.

Some observations can be made on the above manner of organizing the inventory:

- The categorization above highlights two evaluation issues in M&E in KM: (a) relevance and appropriateness of the action to desired results (alignment between Stages 2 and 3), and (b) utility of knowledge assets to the action (alignment between Stages 1 and 2). In the corporate or private sector, the first alignment is called the 'value proposition' of the enterprise: "If we do action X then we can achieve valuable result Y." The second alignment can be labelled as the 'KM proposition.' Managing GKAs or generator knowledge assets (introduced in Part 4, section 4.1) achieves the KM proposition most cost-effectively.

- The logical flow is to work backwards: value proposition determines KM proposition. Therefore, a process audit must precede a KM audit (G #13) otherwise it will be a case of 'doing the wrong thing well.' This also means that a project's KM plan must follow after the project's logical framework (G #14).

- Some KM practitioners are enamoured by, or may be habitually tied to, a KM tool; or an IT vendor will push for his KM solution. Without a formal KM proposition, stand-alone supply-driven M&E tools (Stage 1) do not directly contribute to the effectiveness of KM. It provides only information on the supply of knowledge assets. That is why knowledge-push KM initiatives tend to exhibit very low cost-effectiveness. For the same reason, an inventory of community intangible assets under the KPA model must always be accompanied by, and linked to, eliciting community needs, ideally through a community-driven process or at least through a genuinely participatory, although externally-driven, process (G #5 and G #8).

- KM4D, and similarly M&E in KM4D, should be driven by Stage 3 criteria. We assert here that the authenticity of such criteria is best judged by the local communities or whoever the beneficiaries of a development project happen to be. Using private sector language, they are the customers of the project and therefore the final judges of the value it seeks to create and how best the project should create that value. Again using private sector language, they originate the demand for development projects. Development projects should be, in this sense, truly demand-driven.

- Demand-driven KM audits revolve around identifying and ranking knowledge demand-supply gaps – what knowledge assets users need most (Stage 2) versus availability, accessibility and quality of knowledge assets (Stage 1). After a knowledge value chain has been traced through a program/project (RA #7), internal customers can be identified at each step whose knowledge needs must similarly be identified and prioritized (G #15). The results of gap

analyses are more useful inputs for formulating an organization-wide KM program or for selecting a high-value KM project (G #16). In this knowledge-pull approach, only those knowledge assets most needed by users are sourced and deployed – a more cost-effective approach.

- At Stage 3, disaggregation and attribution of organizational results to specific assets is often difficult. However, if the choice and design of a KM initiative is demand-driven (e.g. to solve a specific problem, to enhance a particular capability, to assist in making a particular type of decision or policy, or to increase the efficiency of a particular work process, etc.) then it is easier to devise a measure or indicator tailored to the achievement of that specific objective (G #17).

- The private sector had advanced further in developing quantitative measures at all stages of value creation, particularly the last stage. Scorecards have been well developed in the private sector. An R&D task for KM4D practitioners is the development of parallel quantitative measures applicable to the development sector (RA #8).

5.2 Proposal: Generic Sustainable Development Scorecard

Currently, the mainstream development value is sustainable development (SD) as enshrined in Agenda 21 which was adopted by 118 governments at the Rio Summit of 1992, and the mainstream quantitative development indicators are the Millennium Development Goals' targets adopted by the United Nations during the 60th Session of the UN General Assembly in September 2000.[49]

The MDGs were first formulated for use at the national level. The task is how to translate the MDG targets into a generic M&E in development applicable also at the local or community level (RA #9). Figure 15 shows an initial attempt to combine and reconcile metacapitals and MDG targets. The resulting categories for the generic SD Scorecard which span both metacapitals and the MDG targets have been provided with labels in Column 2 in Figure 14.

We note some observations and comments:
- Natural capital must be disaggregated further to match MDG targets. Specifically, the MDG targets can be interpreted as distinguishing between organic and inorganic stocks and processes.

- Two metacapitals – cultural capital and inorganic capital (related to the depletion of the stock of non-renewable resources and a major source of non-biodegradable pollution) – do not have matching entries in the MDG targets.

- Consensus on the usage of terms remains an objective in this evolving discipline. For example, Malhotra uses the term 'cognitive social capital' to refer to trust, solidarity and a lack of conflict.[50]

Generic Sustainable Development Scorecard			
METACAPITAL	PROPOSED CATEGORIES FOR A GENERIC SD SCORECARD	LACK OR OPPOSITE	MDG TARGETS http://www.unmillenniumproject.org/goals/gti.htm
TANGIBLE			
Financial capital	1 Financial assets and incomes, size and distribution	poverty	Goal 1: eradicate extreme hunger and poverty Goal 8, Target 15: debt management for
Physical infrastructures	2 Physical infrastructures, equipment	hardware deprivation	Goal 8, Target 18
Technology	3 Process technologies and systems, intellectual property	intellectual deprivation	Goal 8, Target 18
Generative tangible systems	4 Tangible assets to reproduce and support other metacapitals	short-sighted tools	Goal 2: universal primary education (schools etc.)
Information infrastructures	5 Information systems	ICT poor	Goal 8, Target 18
INTANGIBLE			
Human capital; Positive psychological capital Spiritual capital	6 Human livelihood and life skills, education and health	ignorance, disease	Goal 2: achieve universal primary education Goal 4: reduce child moratality Goal 5: improve maternal health Goal 6: combat HIV/AIDS, malaria, etc. Goal 7, Indicator 28: proportion using solid fuels
Cultural capital	7 Attitudes, beliefs, wisdom and spirituality	criminality	(gap)
Relationship capital; Access rights; Social contracts/arrangements	8 Trust, fairness and relationships within and with stakeholders, including trading, investment and property arrangements	war, conflict	Goal 3: gender equality & empower women Goal 8: global partnership for development
Structural/process capital; Institutional capital	9 Values, vision, institutions, policies, programs including good governance and leadership	lawlessness	Goal 7, Target 11: secure tenure of urban dwellers
Generative intangible systems	10 Intangible assets to reproduce and support other metacapitals	innovationless	Goal 8, market access indicators
Natural capital	**NATURAL**		
Organic capital, including biodiversity and biotech production systems	11 Size and health of reproducing/reproducible organic systems whether naturally-occuring, cultured or man-made	barren	Goal 7, Indicator 25: percent land area forested
Inorganic capital	12 Stock of non-renewables	depletion	(gap)
Renewables income	13 Per capita flow of renewables	infertile	Goal 1: eradicate extreme hunger and poverty Goal 7, Indicator 27: energy use
Inorganic flow systems	14 Production and management of inorganic wastes	pollution	Goal 7, Target 28: carbon dioxide and ODS
Organic flow systems=generative/ regenerative natural systems	15 Recycling of organic wastes	eutrophication	Goal 7, Target 28: carbon dioxide and ODS

Figure 15. Metacapital, MDG targets and proposed SD Scorecard categories[51]

- Certain MDG targets correspond to self-renewal or self-reproduction capacities in each of the three macro-categories of tangible assets, intangible assets and natural capital. Here, the label 'generative systems' is introduced.

- MDG targets do not exhaust or completely span each generic SD Scorecard category except the many MDG targets for Category 6 corresponding to human capital. This distribution may be reflective of pressing global priorities as judged by the UN General Assembly during the Millennium Summit.

The International Council for Local Environmental Initiatives (or ICLEI-Local Governments for Sustainability), an association of over one thousand local governments from 68 countries, had adopted the 'triple bottom line' or 'people, planet, profit' concept consistent with SD criteria.[52] A simple, convenient and practice-based SD scorecard for local communities, with a generic and a localized component, is a concrete step towards a universal standard for local development (RA #10).

5.3 KM is for value creation, but whose value?

In the private sector, value creation is measured by unit price paid by consumers less unit production/distribution costs. This is what enters GDP and GNP calculations. Actually, value creation is somewhat higher, because the satisfaction of the consumer is his/her consumer surplus which is the difference between what he/she is willing and able to pay for a product/service and the price he/she actually paid for it. Therefore, total value created = consumer surplus + producer/distributor profit.

In the development sector, the end-consumer is the beneficiary community and all its individual members. Hence, first and foremost, the satisfaction of the consumers who are the members of the local beneficiary community must be truly gauged. Many tools are available for gauging community preferences and community satisfaction. Figure 16 is a listing of such tools (the blue cell in the upper right hand corner of Figure 14).

	Obtrusive	Unobtrusive
Structured	• Questionnaires • Interviews and focus group discussions • Recording of attendance in meetings • Vignettes (edited snippets of personal stories and quotations) • Case study, learning history, outcome mapping	• Participant observation • Ethnographic notes on material artifacts/indicators • Retrospective study of records of attendance in meetings • Retrospective study of court cases, police and other public records
Unstructured or Semi-structured	• Most significant change, peak experiences, critical incidents • Open-ended conversations • Story telling/listening • Audio or video recording • Open-ended dialogue • Graphic facilitation, drawings	• Spontaneous or voluntary stories, writings and musings by local people • Community-initiated complaint, petition or manifesto • Study of local proverbs, stories, songs, lullabies and epics

Figure 16. M&E tools for gauging community values or preferences[53]

## 5.4 Caveat: SD concepts may not completely match community values

The key criterion in KM4D is: *What do community members truly value?*

In 2003, CCLFI.Philippines implemented a project on Leveraging Best Practices for UNDP GEF Small Grants Programme. CCLFI documented best practices into manuals, and tried to capture the qualities of best practitioners through vignettes and video interviews. Community leaders who were recipients of UNDP grants in lessons-capture workshops were invited. Near the end of the project, a Wisdom and Knowledge Sharing Workshop was conducted.

One of the workshop exercises tried to probe what the community members value by asking the question: *"What is a successful community project?"* The workshop groups were asked to draw their answers and explain their drawing to the rest of the participants.

The drawing of one of the workshop groups is shown in Figure 17 ('*tagumapay*' is the Tagalog word for 'success').
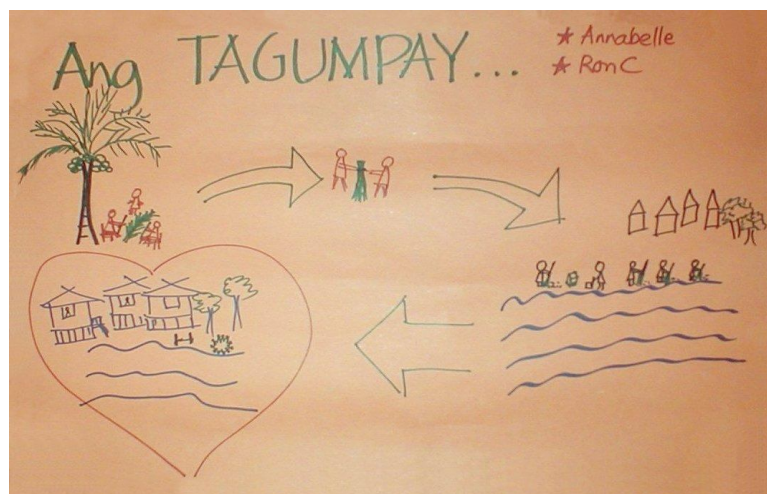
Figure 17. What is project success to community members?

One of the group members, Annabelle, explained their answer (translated from Tagalog, shortened and edited while maintaining the essential ideas):

> *For us, the start of development is like making walis tingting.** [*Note: 'Walis tingting' is a local broom ('walis') consisting of about a hundred coconut midriffs ('tingting') tied together. This coconut broom represents a well-known local metaphor for unity: one coconut midriff cannot do anything; it is powerless. But when many are tied together (unity of the community), they gain strength and efficacy.]

> *First, the leafy part from each coconut leaflet is removed by a knife to produce one* tingting [midriff]. *This is like individual discipline: it is difficult or painful but when done, it is a small success. Then many* tingtings *are tied together into a broom. This is community discipline and unity – a bigger success. With a broom you can clean the seashore of garbage. If the community is united and a project answers community needs – when families get their own house, land and livelihood and they can help themselves and the community – then the project is successful. However, that is not the end-all of success.*

> *The last stage* [see last arrow pointing to houses inside a heart] *is when you no longer need the broom because every community member understands and respects or feels responsible for the environment, and no longer throws garbage. That is far greater success.*

Reflecting on their answer, CCLFI learned these lessons:

- We were expecting community leaders to mention material measures of success. They did (house, land and livelihood) but placed more value on intangible outcomes (individual discipline, community unity, and an internalized sense of responsibility).
- Our thinking was based on the sustainable development framework, which looks at economic, social and environmental impacts – admittedly all about external impacts (external to the individual). The community leaders' thinking is wider: they also look at external impacts but

they look further: at internal or personal impacts. We were tied to the concept of sustainable development; but they were more into internalized values and behaviours which CCLFI later labelled – admittedly still using concepts – as 'sustainable living.'

- We – the development agents – realized that our notion of what is valuable to them is merely that: a notion. Our humbling realization is: our development concepts or notions may be part of the development problem.

5.5 KM in administratively and culturally complex development contexts

KM has been successfully applied in unitary contexts such as in the private or business sector. However, in the development sector, there are contexts that are administratively and culturally complex that result in large measures of uncertainty and unpredictability. A relevant research issue is (RA #11): how applicable is KM to more complex situations (Figure 18)?
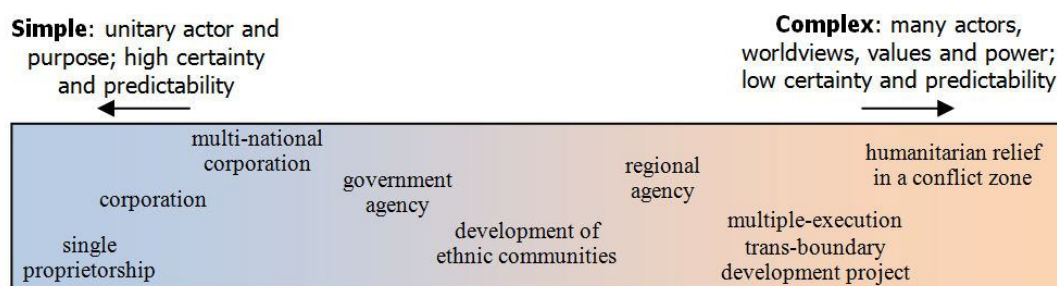

Figure 18. How applicable is KM to complex situations?

Examples of such contexts are:

- A project spans two or more political-administrative jurisdictions (a trans-boundary project) whose respective authorities are beset by unsettled political, legal or cultural differences or rivalries;
- Gaps in perceptions and expectations on the project between the local beneficiary community and the national or local government; for example, a project was conceived by the national government and implemented in a local area by project staff mainly drawn from the local ethnic group which is different from the ethnic group dominant in the national government (cultural gap);
- A project whose success or failure depends on the attitudes and actions of actors outside the span of influence of the project manager, e.g. armed insurgent groups operating in the project area or business interests threatened by the project (uncertainties and risks from the political environment).

Snowden had contributed the most in clarifying the applicability of KM to complex situations. According to his Cynefin framework, there are four types of management situations according to (a) whether or not the management outcome is predictable, cause-and-effect relationships are known, and the underlying order is known or discoverable, and (b) whether the management intervention is rule-based and clear or through heuristics and ambiguous. Under this framework, most KM as

practiced in the corporate sector is viewed as Taylorist or mechanistic (or cause-and-effect relationships are assumed as known or discoverable, the outcome is predictable and intervention is rule-based). The Cynefin framework is useful for categorizing management situations and provides useful tools for sensing the emergent (e.g. through narratives) in complex or chaotic situations.[54]

Development is a purposive value-creating endeavour; however, the Cynefin framework does not explicitly take value creation into account. Consequently, its tools such as narratives are not primarily demand-driven. Even in chaotic situations such as civil war or in complex situations such as peace-building in a conflict-prone area, the objectives and action steps are not completely unknown or unknowable (see lists in Figure 19 in Section 5.5b). We saw earlier that value creation at the organizational level or work performance at the individual worker level depend on intra-personal and inter-personal factors many of which are affective rather than cognitive, such as personal motivation of employees, trust and support of peers and empowering styles of leaders. These are explicitly taken into account in Ken Wilber's framework. It would be interesting to study and develop new tools that combine (a) how the Cynefin framework uses complexity theory in managing knowledge and (b) how the Wilber framework takes intra-personal and inter-personal dimensions of knowledge and human performance into account (RA #12).

5.5a Clarifying goals and values

Following the proposed KM framework, the analytical approach is to always start with clarifying goals and values (Stage 3). KM is for value creation but if there are competing values (Stage 3 in Figure 3) then the action (Stage 2 in Figure 3) that KM has to support is undefined or ambiguous. In areas where social, political or military conflicts are going on, conflict resolution must take place before any development project can be started. Valued results (Stage 3) must be agreed upon before the appropriate action (Stage 2) can be designed.

Non-violent processes had been devised to reconcile competing political values:
- Mediation, such as those performed by Nobel Prize winner Martti Ahtisaari, former President of Finland in Aceh, Kosovo, Northern Ireland and Namibia;
- Visioning exercise, such as that facilitated by Adam Kahane among warring white and black political leaders in apartheid South Africa in Mont Fleur Conference Center in 1991 which paved the way to the end of apartheid policies and the rise of Nelson Mandela;[55]
- Referendum or ballot.

KM for conflict resolution seems to be a relatively undeveloped area of practice (RA #13). For conflict prevention in peacetime development, there are administrative procedures devised to take into account goals and values of minority groups in defining a development action or project. In the Philippine development sector, for instance, the following procedures have been adopted in law as well as in practice:

- Environmental and social impact assessment and appropriate mitigating measures as a prior requirement for project approval to address the social costs borne by other groups as a result of a project;

- Multi-partite environmental and social impact monitoring mechanisms during project operation;

- Requirement of 'free, prior and informed consent' or FPIC by cultural communities or ethnic minorities in whose ancestral domain a project will be located before a project is approved;

- Various participatory and mutual learning modes of project identification, project development and project implementation among local beneficiary communities, donor agencies, local and national governments and other significant stakeholders in a development project could achieve the goal of reducing the gaps in goals and values among the various development actors. Once the remaining gaps are mutually acceptable, each development actor can apply their own KM and M&E initiatives for their respective value creation pursuits:
  - KM at the community level
  - KM at the donor agency level
  - KM at the local or national government level.

5.5b Clarifying actions

Where values and priorities had been settled among competing groups or where a clearly dominant political or administrative authority had defined the development goals and values (Stage 3), then according to the KM framework these goals can in turn be translated into the right courses of action (Stage 2).

The appropriate action varies depending on the stage reached in the transition from conflict to peace-keeping and peace-building, and thence to development. The objective of KM would then be to support whatever action is appropriate. Based on Philippine experience with four secessionist movements (New Peoples' Army, Cordillera Peoples' Liberation Army, Moro National Liberation Front and Mindanao Islamic Liberation Front) over the last three decades that had cost lives and development opportunities, Figure 19 lists examples of appropriate actions at various stages of peace-building and development.

The tool used for rationally aligning action (Stage 2) to values (Stage 3) is the Value Proposition in the private sector, or the Project Logical Framework in the development sector. As the complexity of the development context increases, the usefulness of project logframes and operational level KM decreases.

Kahane (2004) suggested that there are three types of complexity and three corresponding types of appropriate responses. He attributes the success of the Mont Fleur workshop to the combination of three types of responses.

1. Dynamic complexity: causes and effects are far apart in space and time; appropriate response: systems thinking.

2. Generative complexity: future is unfamiliar and unpredictable; appropriate response: sensing the emergent.

3. Social complexity: actors involved have different assumptions, values, rationales and objectives; appropriate response: participatory processes.

Stages	Conflict	Peace Keeping (Transition)		
		Peace Building (Initiation)		
			Development (Transformation)	
Start with		Cessation of hostilities	Departure or demobilization of military forces	Re-establishment of civilian supremacy
Control		Military control	Turn-over to civilian control	Civilian control
Appropriate Actions		• Cessation of hostilities or • Negotiation towards cessation of hostilities • Agreement on how to share political power, re-establish civilian governance and downsize, demobilize or withdraw armed forces • Management of other armed groups not party to cessation agreement • Control and reduction of loose and small firearms, and inflow of new firearms • Emergency and humanitarian relief: food, medical services, basic necessities	• Management of demilitarization and building of police forces • Re-establishment of civilian government based on parameters that avoid the root causes of conflict; training in governance • Culturally-sensitive reconciliation, dialogue and political *modus vivendi* among conflicted parties ("bridging social capital") • Reconstruction of public infrastructure and reinstatement of public services • Fair and transparent redress of loses and grievances, process claims on land, property and other rights • Prevent recurrence of exploitative structures e.g. re-emergence of dominant groups that can exacerbate the risk of conflict	• Targeted reduction of inequities, social exclusions and other root causes of conflict • Poverty alleviation, retraining, employment and livelihood/enterprise stimulation programs especially for demobilized military personnel • Continuing dialogue across groups • Development modes that strengthen interdependence, cooperation and respect for differences/diversity
Examples		Eastern Congo	Iraq, Afghanistan	Timor Leste; Mindanao

Figure 19. Appropriate action at various stages in peace-building and development

Kahane's successful approach may indicate the way towards new useful tools for acknowledging and reconciling conflicting purposes in a peaceful group process of co-creating alternative scenarios or stories of the groups' shared future.

An approach for planning and implementing action within an administrative context of changing and unpredictable objectives ('a moving target') has been developed in the software industry, namely, the so-called 'agile methodology.'[56] In contrast to top-down and structured planning in a predictable or stable environment, which software engineers call 'waterfall methodology,' agile methodology (a) proceeds in short units of planning and implementation called 'sprints,' (b) incorporates a representative of the customer (built-in responsiveness to the moving target) as part of the work team, (c) is characterized by strong teamwork and self-management, and (d) has very frequent consultations and sign-offs. In brief, agile methodology works with small units of order/predictability that can fit well within a larger context of disorder/unpredictability.

5.6 Proposed M&E Guidelines and Research Agenda

5.6a Indicative Guidelines for M&E in KM4D

The KM framework (Figure 4) in support of the project logframe is the starting point of M&E for KM4D. The KM framework is a generic framework that links KM to value creation and is applied to private and public or development sectors. Other KM frameworks that do not explicitly link KM to value creation

are disconnected frameworks and can hardly serve as the basis for designing an M&E system that can assess whether and how KM contributes to the larger objectives.

Viewing the stages as steps in value creation, and moving backwards from right to left in the diagram, here are G# notes collected in previous sections and organized from Stage 3 to 1:

- **Primacy of community values**. Communities and social groups are the primary actors in, and the ultimate beneficiaries of, development. KM4D should start with a recognition of community values and needs (pertains to Stage 3), which in turn serve as the primary criteria for project evaluation. At the project identification stage, participatory tools for accurately knowing community values and needs are important. At the project implementation stage, tools for mutual learning, which recognizes the essential validity of local knowledge, such as LSS, are important.

- **KM linked to project logframe**. Next, the value proposition (the relevance of an action to value creation; the link between Stages 2 and 3) must be validated, before the KM proposition (the usefulness of knowledge assets to the action; the link between Stages 1 and 2) is examined. A process audit must precede a KM audit. For the same reason, a project's KM plan must follow the project's logical framework.

- **Knowledge gaps**. One KM assessment approach is to assess the gap between what the users of knowledge assets need most (Stage 2) and what knowledge assets are available (Stage 1). The results of a gap analysis are more useful inputs when formulating an organization-wide KM program or for selecting a high-value KM project. In this knowledge-pull approach, only those knowledge assets most needed by users are sourced and deployed – a more cost-effective approach. This will avoid wasteful solution-driven or technology-driven approaches that are so common in KM practice.

- **M&E of performance**. Once the value proposition is validated, the improvement of performance (Stage 2) becomes the basis for measuring KM impact. From the definition of knowledge (See Section 2.1), the simplest and most convenient type of M&E tool of KM is performance measures or indicators. ROI can also be estimated if the causal link between Stages 2 and 3 is clear and specific. For example, if the causal link between workplace development objectives (WDO) and organizational objectives is clear and quantifiable (the value proposition of a training intervention), then the ROI of training designed towards WDO can be estimated.

- **Generator knowledge assets** or GKAs are those knowledge assets that exert the most impact on performance (what in Stage 1 can affect Stage 2 the most). Managing only the GKAs is the most cost-effective KM (high-octane KM or lean and mean KM).

- **Knowledge needs of internal customers**. After a knowledge value chain has been traced through a program/project, internal customers can be identified at each step. Knowledge needs of internal customers must similarly be identified and prioritized.

- **Context and interactivity**. Better performance or more effective action in any particular work context comes from having the right combination of human capital, structural capital, relationship capital and technology appropriate to the given context. For example, the benefit

generated by training is due to the interactive and joint effects of the training intervention and other pre-existing knowledge assets such as the technical preparation of the participants, their attitudes, policies affecting the workplace, etc.

- **M&E in problem-driven KM**. In a complex organization or value chain, disaggregation and attribution of organizational results at Stage 3 to specific assets in Stage 1 are often difficult. However, if the choice and design of a KM initiative is driven by a specific objective (e.g. to solve a specific problem, to enhance a particular capability, to assist in making a particular type of decision or policy, to increase the efficiency of a particular work process, etc.) then the value chain is simple and linear, and it becomes easier to devise a measure or indicator tailored to the achievement of that specific objective.

We saw that knowledge assets are only part of intangible factors contributing to work performance. The management of all tangible and intangible factors therefore makes more sense than the management of knowledge assets only. Hence the M&E of intangibles must replace the M&E of KM. Specifically for local communities, successful anti-poverty projects happen because the projects leveraged on the wealth of intangibles that the 'poor' communities already had. M&E of community KM must be replaced by M&E of community tangible and intangible assets.

Because KM has to be user-driven and there are many levels of users in development, a distinction must be made between: KM by communities or MSMEs (micro, small and medium-scale enterprises) and KM undertaken by development institutions for communities or MSMEs. Furthermore, a distinction must likewise be made between community level KM versus project or organizational KM by development institutions, or KM among a network of development professionals and development institutions. These levels are identified in Figure 14. Donor institutions and development practitioners also differ in their KM interests. These interests are not mutually exclusive; for example, a more comprehensive post-project evaluation should satisfy donor requirements as well as empower practitioners and facilitate their professional learning and growth through a combination of a traditional project evaluation and lessons-learned session (combination of vertical and horizontal learning).

5.6b Suggested Research Agenda for M&E in KM4D

Further researches are needed in the following areas:

1. **KM framework and vocabulary**. KM4D is a new subfield of KM with needs and issues different from that of KM in the corporate sector. It is important to clarify meanings by adopting a KM4D vocabulary with definitions or redefinitions that will be commonly accepted by KM4D practitioners. Next, the simple but generic KM framework proposed in this paper that can form a more solid basis for M&E for KM4D can be proposed to the KM4D community and consensually developed and adapted further. The framework proposed here is only a start. A generic value-creation principle, applicable for both market-based and socially-oriented value creation, if accepted by the KM4D community, can correct some current mis-directions and wastages as KM theory and practice mature in the KM4D community.

2. **Growing and evolving repository of M&E in KM4D tools**. We lack knowledge in many areas in KM4D. Therefore, development workers must take as much advantage as they can of the headway gained by KM practitioners in the corporate sector. In particular, M&E tools from the corporate sector can be translated, adapted or revalidated for parallel use in the development sector. The inventory of M&E tools in Figure 14 is not complete. A continuing and broad-based updating and R&D effort is needed to improve the inventory. Manuals for the most commonly accepted tools can be kept in a repository accessible to KM4D practitioners for their use, adaptation and continuous improvement.

3. **User-driven KM**. The private sector principle and practices of quality management can benefit the development sector. Translating the private sector principles of serving customers and enhancing customer value has the potential to better align development actions to what development customers truly want. It can also improve internal organizational effectiveness, e.g. through the application of the knowledge value chain approach in development programs/projects that seek to serve internal customers better.

4. **Scorecards to simplify M&E**. Sustainable development is a major mainstream development paradigm that has been formally accepted by most governments. Knowledge-based development is, in the light of the emerging global knowledge economy, a second significant development paradigm. Unfortunately, the reconciliation and synergy of these two major development paradigms is an unfinished R&D business. The generic SD scorecard is a step in this direction. Part of the task is translating the MDG targets into generic categories for M&E in development that can also be applicable at the local or community level. A simpler version for practice-based triple bottom line scorecard for local communities is another option.

5. **Participatory community assessment tools**. At the same time, the local communities' unique needs, preferences and values must also be recognized and respected as the basis for any development that communities will accept as authentic and embrace as their own. Towards this purpose, new tools are needed for participatory and appreciative community self-assessment of their intangible assets, in preparation for designing projects to address community needs in a manner that leverages on their unique mix of tangible and intangible assets.

6. **KM in small enterprises**. Specifically, KM by MSMEs (which is not the same as KM for MSMEs) that borrows and scales down successful KM practices from the corporate sector needs to be developed and tested.

7. **KM in complex environments**. More studies are needed in whether, and how best to apply management of knowledge and other intangibles in administratively and culturally complex environments. A synergy between Snowden and Wilber's frameworks may be useful to explore.

Part 6. Concluding observations in relation to the IKM Emergent Programme

KM is still an evolving discipline. Finding consensus on theory, concepts and language is still going on. Confusions and debates abound. Corporate practice, where KM originated, continues to outstrip academic theory. Despite these issues, the universal importance of knowledge in the emerging global knowledge economies and societies is pushing the widespread and growing interest in KM across a wide variety of sectors and user groups, including in KM4D.

The development sector is a challenging field for the application of KM. This sector is beset with issues not present in the corporate sector: multiplicity of actors, asymmetries in power, cross-cultural communication gaps, diversity of knowledge and learning styles, and problems that are both urgent and complex.

The KM4D community, including the IKM Emergent Programme in particular, has an opportunity to contribute to the development of a KM discipline adapted for the development sector. KM4D will need to adopt and build upon the wealth of KM experiences from the corporate sector, but more importantly, it will also need to develop new KM perspectives and tools for application to more complex and diverse development situations.

M&E is an area for innovation in KM4D. A paper on M&E for KM4D cannot immediately deal with M&E itself. It must first address four prior KM issues mentioned in Section 1: epistemological problem, socio-political problem, methodological problem and operational problem.

Hence, the paper started by addressing other nagging issues in KM: (a) consensus on the definition of basic concepts, (b) disaggregation of knowledge and its relation to other intangibles, (c) identification of constraints in M&E applied to KM such as attribution and separability of impact, context, interactivity among knowledge assets, and various stages of value creation that must each be monitored and evaluated, and (d) the criteria or end goals against which evaluation of KM must be made, knowing that in the development sector there is often a diversity of goals and values among the many development actors involved. In particular, the paper reviewed approaches and solutions that had been tried in highly complex and unstable development environments such as in conflict-torn areas, in order to begin the process of understanding if and how KM can be applied under conditions of complexity and chaos.

For the IKM Emergent Programme, innovation in M&E for KM4D lies along the research agenda recommended in Section 5.6b. In particular, more consumer-driven M&E tools are recommended, such as LSS and other mutual learning tools, local contextualization of good practices and other knowledge developed elsewhere, convenient and practice-based community-level SD Scorecard, and tools for more accurate gauging of community preferences and community satisfaction not only for M&E but also for project identification and project design in the earlier stages of the project cycle.

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Endnotes

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[1] One indicator of this popularity is the growing membership and lively discussion of issues in the KM4Dev discussion group. Its website is at: http://www.km4dev.org/.

[2] Call for Proposals: Analysis of the monitoring and evaluation of knowledge management approaches (IKM Output 3.4A). IKM Emergent, 8 June 2008. This quote came from: Ramalingam, Ben (2005). Implementing Knowledge Strategies: Lessons from International Development Agencies. Working paper 244. London: ODI.

[3] Personal communication with Dr. Rory Chase, Managing Director of Teleos, U.K. which runs the annual MAKE Award (Most Admired Knowledge Enterprise). Dr. Chase's observation is supported by the fact that the more KM books were written by practitioners than by academicians.

[4] This was well-documented in: Hulsebosch, J., M. Turpin and S. Wagenaar. Monitoring and Evaluation of Knowledge Management Strategies. Draft IKM Emergent Working Paper (ready for publication in 2009).

[5] Drucker, P. 1989. "The New Realities," Harper-Collins.

[6] Nonaka, I. "A dynamic theory of organizational knowledge creation," Organization Science vol. 5, No. 1, pages 14-37 (1994).

[7] Sveiby, K. E. 1997. "The New Organizational Wealth: Managing and Measuring Knowledge-Based Assets," San Francisco: Berret-Koehler.

[8] O'Dell, C. and C. J. Grayson, Jr. 1998. "If Only We Knew What We Know," Free Press.

[9] Davenport, T. H. and L. Prusak. 1998. "Working Knowledge: How Organizations Manage What They Know." Boston: Harvard Business School Press.

[10] Bendler, A. et al. 2001. "Knowledge Unplugged," Dusseldorf: McKinsey & Company.

[11] This result was reported and analyzed in: Talisayon, S. "Some Stories about How Personality and Culture Come into Our Knowledge Management Practice," paper read at the Conference on Innovation in Managing Knowledge for the Competitive Edge. Kuala Lumpur, Malaysia. June 30 - July 2, 2008.

[12] The "intellectual capital" school of KM adopts a somewhat broader conceptual viewpoint which (a) views knowledge from a corporate resource or asset perspective, and (b) disaggregates intangible assets into the three components mentioned above which together constitute 'intellectual capital.' The leading proponents of this school of KM include the earliest KM practitioners from Scandinavian countries such as Karl Erik Sveiby and Leif Edvinsson, and later proponents such as Thomas Stewart and Patrick Sullivan. Human capital and structural capital roughly correspond to tacit and explicit knowledge, respectively. The corporate asset perspective easily leads to causal formulations that link KM to value creation, but it tends to hide the richness and inter-convertibility of tacit and explicit forms of knowledge and therefore also tends to maintain the disciplinal boundaries between human resource management and information management, respectively. The most well-known, widely-accepted international KM award, the Most Admired Knowledge Enterprise or MAKE Award, adopts eight

criteria based on the intellectual capital framework. Intellectual capital accounting or tracking methods have been developed, e.g. Sveiby's Intangible Assets Monitor, Edvinsson's Scandia Navigator, and Kaplan and Norton's Balanced Scorecard, and the IC Index of Roos et al.

[13] A small minority of KM practitioners do not accept that stakeholder capital, customer capital or the more generic relationship capital is a knowledge asset or is part of intellectual capital. From a layman's perspective, relationship is certainly not equal to knowledge, but from the KM practitioners' definition of knowledge as the capacity for effective action, then certainly relationship capital is part of knowledge assets. Thus, most KM practitioners accept the proposition by St. Onge that customer capital is part of knowledge assets. The prevailing view is that knowledge is both an individual and a group phenomenon. Team learning, organizational knowledge bases, 'transactive knowledge,' social computing (e.g. wikis), business process improvement and other group-wide knowledge processes are better understood and managed from the broader perspective that relationship capital is part of intellectual capital. I try to make it easier for KM beginners to understand the nuances by introducing labels: human capital as 'embodied knowledge,' structural capital and technology as forms of 'embedded knowledge,' and relationship including stakeholder capital as 'encultured knowledge.'

[14] We adopt here the definition of 'intangible assets' by the accounting profession, namely, non-physical assets that are not always entered in accounting systems or given a monetary value, but they nevertheless generate value for the organization (see IAS 36 and IAS 38 of the International Accounting Standards).

[15] Nonaka, I. 2008. Strategy as Distributed Phronesis: Knowledge Creation for the Common Good. In: Knowledge Management: from Brain to Business, *Proceedings of the International Productivity Conference 2007, Bangkok, Thailand, 18-19 January 2007.* Tokyo: Asian Productivity Organization. The term 'intellectual capital management' and its categories are less prone to misunderstanding when compared to the term 'knowledge management' because of the many different meanings that the word 'knowledge' denotes to laymen.

[16] Goleman compiled a number of research findings that EQ is a stronger correlate of work performance than IQ. See: Goleman, D. 1995. *Emotional Intelligence: Why It Can Matter More Than IQ for Character, Health and Lifelong Achievement.* New York: Bantam Books.

[17] A review of 22 case studies of good KM practitioner-organizations from 9 Asian countries showed that a common pattern is the use of a variety of methods for motivating knowledge workers. See Talisayon, S. 'Concluding Observations' chapter in S. D. Talisayon (ed.). *Knowledge Management in Asia: Experiences and Lessons.* Tokyo: Asian Productivity Organization, June 2008.

[18] Wilber, K. 1995. *Sex, Ecology, Spirituality: the Spirit of Evolution.* Boston: Shambhala. Also see: Wilber, K. 1997. *The Eye of the Spirit.* Boston: Shambhala.

[19] 'Ba' is an often misunderstood Japanese concept in KM introduced by Ikujiro Nonaka. For example, 'customer ba' is the shared interpersonal space between the customer and seller that facilitates communication of knowledge, meanings and values. Filipinos use a Tagalog 'suki' which is the special relationship developed over many years between a buyer and a seller who have come to trust one another. The closest Western term I can find to ba is 'container for dialogue' used by Peter Senge and William Isaacs. When trainers re-arrange chairs to facilitate interaction during workshops they are

trying to create ba. The 'Knowledge Hallway' of Price Waterhouse Coopers is a similar example where office layout, furniture and spaces are arranged to facilitate interaction and knowledge sharing. See: Takeuchi, H. and I. Nonaka. 2004. Knowledge Creation and Dialectics' Hitotsubashi on Knowledge Management. Singapore: John Wiley & Sons (Asia).

[20] A number of related concepts and nomenclatures are emerging, such as 'integrity capital,' 'positive psychological capital,' 'emotional capital,' etc. The common theme behind these concepts and the more traditional or commonly used ones such as 'factors of production' (land, labor and capital), intellectual capital (human capital, plus structural or process or internal capital, plus stakeholder or relationship or customer or external capital), social capital, natural capital, cultural capital, access and property rights, technology and infrastructures, is the observation that all these factors contribute to or affect productivity, performance or wealth/value creation at the individual, team, organizational or societal levels. We had proposed the term 'metacapital' as the generic term to embrace all these factors or forms of capital that contribute to wealth creation. See: Talisayon, S. and J. Suministrado (2008). Knowledge for Poverty Alleviation: A Framework for Design and Evaluation of Development Projects for Low-Income Communities. Paper presented at the conference on '***Knowledge Architectures for Development***,' Singapore Management University, March 24-25, 2008.

[21] See page 111 of Sullivan, P. Value-Driven Intellectual Capital: How to Convert Intangible Corporate Assets into Market Value. John Wiley and Sons, 2000. Or see page 9 of Lev, B. Intangibles: Management, Measurement and Reporting. Washington, D.C.: Brookings Institution, 2001.

[22] Chase, R. 2007. 'Innovation and Intellectual Capital Management Set the Agenda' In: Serafin D. Talisayon (editor) Knowledge Management: From Brain to Business, *Proceedings of the 2007 International Productivity Conference, Bangkok, Thailand, 2007.* Asian Productivity Organization.

[23] World Bank: World Development Report 2008. Washington, D.C., 2008. Page 357.

[24] Fukuyama, F. 1995. Social Capital and the global economy. *Foreign Affairs.* 74(5):89-103. See also: Fukuyama, F. *Trust: the Social Virtues and the Creation of Prosperity.* Free Press, 1996.

[25] Talisayon, S. 1991. 'Lessons' in: Serafin D. Talisayon (editor). *Innovative Development Processes in the Philippines: Case Studies.* Asian Center, University of the Philippines.

[26] Covey, S. and Merril, R. 2008. *The Speed of Trust: The One Thing That Changes Everything.* Free Press.

[27] Marcum, D. and Smith, S. 2007. *Egonomics: What Makes Ego Our Greatest Asset (or Most Expensive Liability).* Simon and Schuster.

[28] Social Analysis and Reporting Division. 2001. Social Capital: A Review of Literature, Office of National Statistics, U.K., October.

[29] Adapted from Talisayon, S. 'Overview' chapter in S.D. Talisayon (ed.). *Knowledge Management in Asia: Experiences and Lessons.* Tokyo: Asian Productivity Organization, June 2008.

[30] Skyrme, D. Measuring Knowledge: A Plethora of Methods. 1997, revised 2005. Source: http://www.skyrme.com/insights/24kmeas.htm#app

[31] Vestal, W. *Measuring Knowledge Management.* APQC, 2002.

[32] The serve-the-customer principle is fine but it suffers from a significant operational flaw: most consumers make decisions with almost zero knowledge of the human, social, environmental and

cultural costs inflicted elsewhere by the corporate producer-seller while producing what the consumer-buyer wants.

[33] See http://www.worldbank.org/kam

[34] Asian Development Bank (2007). Moving Toward Knowledge-Based Economies: Asian Experiences (Technical Report). Asian Development Bank, September.

[35] This basic development principle can lead to occasional problems: results valued by a social group may be harmful to another social group. The Al Qaeda and the US Government want valuable (to each of them) results that are extremely at odds with each other – and each side uses KM along their own definitions of what to them is effective action (both use manuals, mentoring, technology, learning-by-doing, websites, networks, etc. – all KM tools). More, milder situations exist, where the KM framework of the more powerful group prevails (sometimes unwittingly) over that of the less powerful one.

[36] The meanings of 'social capital' are confusingly diverse. Claridge. T. (2004) surveyed the many varieties of the meaning of the term, popularized by authors such as Bourdieu, Coleman and Putnam, and he concluded that the commonality is the focus on "social relations that have productive benefits." See: http://www.gnudung.com/. See also: (a) Bourdieu P. The Forms of Capital. In: Richardson J., (ed.) *Handbook of Theory and Research for the Sociology of Education.* New York, New York: Macmillan, 1986. (b) Coleman, J. Social capital in the creation of human capital. *American Journal of Sociology* 1988; 94(Suppl):S95–S120. (c) Putnam, R. *Bowling Alone: The Collapse and Revival of American Community.* New York: Simon and Schuster, 2000.

[37] See: 'Our development concepts may be THE problem' in Apin Talisayon's Blog, November 14, 2008 (http://apintalisayon.wordpress.com/2008/11/14/f15-our-development-concepts-may-be-the-problem/)

[38] Argote, L. and R. Moreland. Transactive Memory and Work Group Performance. Source: http://www.casos.cs.cmu.edu/events/conferences/2000/pdf/Argote&Moreland.pdf

Also see: Ren, Y. Why and When Does Transactive Memory Matter: Opening the Black Box. Source: http://www.casos.cs.cmu.edu/events/conferences/2004/2004_proceedings/Ren_Yuqing.pdf

[39] Talisayon, S. and J. Suministrado. Community Wealth Rediscovered: Knowledge for Poverty Alleviation. Quezon City, Philippines: Center for Conscious Living Foundation, Inc. and Peace and Equity Foundation, April 2008.

[40] There are at least four ways that the external environment drains metacapital from local Philippine communities:

- Commercial banks' local branches are more deposit takers than lenders; the result: private savings are siphoned off from the local areas to Manila, the capital city (drain in financial capital);
- Companies extract local natural resources, and most of the economic proceeds go to Manila and/or outside the country (loss of natural capital);
- The central government collects taxes from the local governments and returns only a fraction for local government operations and for local development (drain in fiscal resources);
- The brightest young talents migrate to Manila and abroad (loss of human capital).

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[41] See: http://www.microlinks.org/

[42] Level 2 includes development workers and professionals, development NGOs from the community level up to the regional and international level, development funding/donor institutions including bilateral aid agencies, multilateral and regional development banks, national and local development banks, commercial service and technology providers, academic and research institutions, etc. People's organizations, people's cooperatives and community-based livelihood systems belong to Level 1.

[43] Ramalingam, Ben (2005). Implementing Knowledge Strategies: Lessons from International Development Agencies. Working paper 244. London: ODI.

[44] See: http://www.cdsea.org/

[45] Phillips, J. and R. Stone. *How to Measure Training Results*. McGraw-Hill, 2002.

[46] Smith, D. Y. and T. Waddington. Running Training Like a Business: Determining the Return on Investment of Your Learning Programs. *Outlook,* February 2003. Accenture.
See:http://www.accenture.com/NR/rdonlyres/B072E802-FBA7-4A66-ADFA-79EBA143592F/0/learning_programs_usltr.pdf

[47] See: http://economics.about.com/cs/economicsglossary/g/network_ex.htm

[48] See: http://en.wikipedia.org/wiki/Metcalfe's_law

[49] See: http://www.un.org/millennium/summit.htm

[50] Malhotra, Y. 'Measuring Knowledge Assets of a Nation: Knowledge Systems for Development.' UN Department of Economic and Social Affairs, 2003.

[51] Among the current R&D projects of CCLFI are: (a) development of a generic SD scorecard, and (b) development of simple but statistically efficient quantitative predictors of success of community-based anti-poverty projects. A similar approach was proposed by Malhotra in 2003, based on the Balanced Scorecard approach in the corporate sector. See: Malhotra, Y. 'Measuring Knowledge Assets of a Nation: Knowledge Systems for Development.' UN Department of Economic and Social Affairs, 2003.

[52] http://www.iclei.org/

[53] Some entries are borrowed from: Hulsebosch, J., M. Turpin and S. Wagenaar. Monitoring and Evaluation of Knowledge Management Strategies. Draft IKM Emergent Working Paper (for publication 2009).

[54] A short summative article is: Snowden, D. and P. Stanbridge. The Landscape of Management: Creating the Context for Understanding Social Complexity. *E:CO* Vol. 6, Nos. 1-2, 2004, pp. 140-148.

[55] Kahane, A. 2004. *Solving Tough Problems: An Open Way of Talking, Listening, and Creating New Realities.* San Francisco: Berrett-Koehler.

[56] For example see: http://en.wikipedia.org/wiki/Agile_software_development.