

## 4. INNOVATIONS IN MONITORING AND EVALUATING RESULTS

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### THE DEVELOPMENT CONTEXT

#### The rapid emergence and adoption of innovations in monitoring and evaluating results<sup>34</sup>

Countries are increasingly using **innovative approaches to manage the performance of public policies, programmes and service delivery**. These approaches are fostering more inclusive, collaborative and responsive processes across the development cycle: from planning to implementation, monitoring and evaluation. Two critical commonalities among the innovations explored in this paper are: 1) the increased frequency of input and feedback; and 2) the expanded definition of and outreach to stakeholders, including those not traditionally part of the development process. Increased participation is, in some cases, direct (e.g. citizens providing input through SMS reporting or storytelling), and indirect in other cases (e.g. information being collected and analysed remotely and in the aggregate). Many of the innovations are also characterized by their relatively low cost and lower degree of formality and rigidity.

These innovations bring a significant benefit to the development process by enabling more frequent testing of theories of change and facilitating timely course corrections based

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34 Partially based on "Innovations in Monitoring and Evaluation 'as if Politics Mattered'", Concept Note, Roche/Kelly, 04-08-2011, [mande.co.uk/2011/coming-events/conferences/innovations-in-monitoring-and-evaluation-as-if-politics-mattered/](http://mande.co.uk/2011/coming-events/conferences/innovations-in-monitoring-and-evaluation-as-if-politics-mattered/); (2) "Answering Calls for Integrative Capacity Development for Sustainable Development, Group 3: Monitoring and Evaluating Sustainable Development Results: Flexible, Nimble and Dynamic Approaches", 15/17-10-2012, Bratislava, Slovakia, draft; (3) "Using Technology for Development Project Monitoring & Evaluation: An Interview with Linda Raftree", 02-07-2013, [bestict4d.wordpress.com/2013/07/02/using-technology-for-development-project-monitoring-evaluation-an-interview-with-linda-raftree/](http://bestict4d.wordpress.com/2013/07/02/using-technology-for-development-project-monitoring-evaluation-an-interview-with-linda-raftree/).

on evidence. By gathering frequent input on the building blocks of policies, programmes and service delivery from those most affected, hurdles and bottlenecks are more easily identifiable. When organizations are capable of absorbing this information and have systems flexible enough to respond to it, they achieve better results: more relevant policies, more effective programmes and improved service delivery.

Innovations in monitoring and evaluating results are emerging and being adopted at such a rapid pace for a number of reasons.<sup>35</sup> On the one hand, M&E has to respond to the higher demands placed on it and to the fast-changing environment. On the other hand, as technology moves forward, opportunities for innovation in M&E are opening up.

A number of factors are driving innovation in M&E:

### *The need for flexible and faster M&E*

Increased unpredictability, rapidly changing circumstances and a dynamic environment for public action require more flexible, dynamic and nimble approaches to M&E that capture and adapt to rapidly and continuously changing circumstances and cultural dynamics. Traditional approaches of diligently checking if a public policy, programme or service is 'on track' in achieving a predefined milestone is often not sufficient anymore. Further, feedback loops of traditional monitoring (with quarterly and annual monitoring, mid-term reviews, final evaluations, annual reporting, etc.) have often proven to be too slow to influence decision-making in time. More timely real-time updates are required for better use of monitoring information and evaluation findings.

### *Theories of change need intermediate outcomes that can be measured quickly and easily*

There is an increased emphasis on measuring outcomes (changes in behaviour and performance) as a result of public policy, programmes and service delivery. Due to their nature, however, outcomes are typically more difficult to monitor and evaluate, since data is often not readily available and primary data collection is typically required. A theory of change that includes a more proximate series of outcomes that can be measured and reported on more quickly and easily ('fast-cycle measurables') can be used as a meaningful tool to manage and assure the quality of policies, programmes and service delivery.

### *Civil society demands accountability*

In countries with an increasingly energetic civil society, there is growing public demand for greater transparency and public accountability. This, in turn, requires more rigorous monitoring and evaluation of public policies, programmes and service delivery. A lack of objective evidence on the performance of policies, programmes and service delivery may contribute to a lack of accountability and even misappropriation of resources.

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35 For a detailed critique of current M&E practices from a women's rights perspective, see e.g. "Capturing Change in Women's Realities: A Critical Overview of Current Monitoring and Evaluation Frameworks and Approaches", Batliwala/Pittman, Association for Women's Rights in Development, December 2010; available at [awid.org/About-AWID/AWID-News/Capturing-Change-in-Women-s-Realities](http://awid.org/About-AWID/AWID-News/Capturing-Change-in-Women-s-Realities).

### *Avoiding cognitive bias*

More traditional M&E methods, such as focus groups or surveys, require interpretation by experts who may build in their biases or reinterpret, rather than aggregate, citizens' inputs in order to uncover patterns. With increasing application of behavioural economics to policy making, this potentially detrimental impact of cognitive biases on decision-making is becoming more obvious.

### *Single method is not sufficient anymore*

Public policies, programmes and service delivery operate in increasingly complex and ever-changing social, economic, ecological and political contexts. No single M&E methodology can adequately describe and analyse the interactions among all of these different factors. Mixed methods allow for triangulation—or comparative analysis—which is better suited to capture complex realities and to provide different perspectives on the effect of public policies, programmes or service delivery.

In addition, a number of factors are currently enabling innovation to take place in M&E:

### *More mature civil societies*

In many countries, a more matured civil society is increasingly willing and able to participate in the planning, monitoring and evaluation of public policies, programmes and service delivery. This is partially also due to new information and communication technology tools.

### *Boom of information and communication technology*

Advances in and the spread of information and communication technology open up a wide range of new opportunities for innovations in M&E. This includes the spread of access to the Internet and mobile phone networks, the proliferation of mobile phones and other hand-held devices, better and cheaper satellite and aerial remote sensing, the production of inexpensive sensors (such as pyro-electric heat sensors and pressure slab sensors), as well as sophisticated software for data analysis and mining.

### *Rise of 'big data'*

The explosion in the quantity and diversity of high-frequency digital data holds the potential—as yet largely untapped—to allow decision makers to track the performance and effects of social policies, programmes and service delivery to better understand where adjustments are required. Big data is an umbrella term for call logs, online user-generated content (e.g. blog posts and Tweets), online searches, satellite images, and mobile-banking transactions. Big data usually requires computational techniques to unveil trends and patterns and turn them into actionable information.

## **ISSUE ANALYSIS**

### **Features of innovations in monitoring and evaluating results**

An innovation is the introduction of something new, whether an idea, method, or device (Merriam-Webster dictionary). Typical categories of innovations for monitoring and evaluating the performance of public policies, programmes or service delivery are: a) technological

innovations; b) innovative products; c) innovative services; d) innovative processes; or e) innovative interactions and partnerships. In this paper, we consider a product, process, service or a technology to be an innovation in M&E if at least two of the following criteria are met:<sup>36</sup>

### *Significant process improvement*

Innovations in M&E are technologies, products, services, processes or interactions that have shown a significant impact on how M&E is done (not just innovation for innovation's sake) or have a clear potential to change M&E in order to improve the value or usefulness of monitoring information and evaluation findings. Typically, innovations with a great potential impact also address a core need or core challenge in M&E.

### *Catalytic change*

Innovations in M&E have to go beyond incremental change and reframe, re-imagine, or recombine different existing elements to yield a new pathway for M&E. In other words, an innovation in M&E is not simply a better, faster, cheaper way of doing the same thing. Innovation requires going beyond current models of thinking in M&E. That is why it often takes outsiders or unconventional partnerships to break old paradigms in M&E.

### *Concrete*

Innovations in M&E must be sufficiently concrete. Ideas and theoretical approaches are not innovations (although they can lead to innovations). Innovations are concrete if they are already being implemented (at least as pilots), can be replicated and are potentially scalable across different contexts and regions.

## **Innovations focus on monitoring, less so on evaluations— but distinctions get blurred**

Most of the innovations examined here can be directly used for monitoring public policies, programmes and service delivery, while only a few innovations focus exclusively on evaluation (e.g. multilevel mixed evaluation methods, outcome harvesting). This could imply that in the current environment, the push for innovations is mostly driven by the need and the possibility for better, more frequent and real-time monitoring. The clear distinction between monitoring and evaluation<sup>37</sup> in traditional M&E, however, appears to get more and more blurred:

- Many of the innovative tools can be used for monitoring as well as for evaluations (e.g. crowdsourcing, micro-narrative, mobile data collection, data exhaust, data visualization).

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36 Partially adopted from: EvalPartners Evaluation Challenge ([mymande.org/evalpartners/innovation\\_challenge](http://mymande.org/evalpartners/innovation_challenge)); "Six Fundamental Truths About Innovation" (blog), Stikeleather 2013, Management Innovation eXchange, 28-02-2013 ([managementexchange.com/blog/six-fundamental-truths-about-innovation](http://managementexchange.com/blog/six-fundamental-truths-about-innovation)); "Principles – Stories of Innovation", UNICEF ([unicefstories.org/principles](http://unicefstories.org/principles)); "Innovation for development: what is really different?", Quaggiotto 2013, Voices from Eurasia (blog), UNDP, 18-03-2013 ([europeandcis.undp.org/blog/2013/03/18/innovation-for-development-what-is-really-different](http://europeandcis.undp.org/blog/2013/03/18/innovation-for-development-what-is-really-different)).

37 Monitoring is continuous, often internal and tracks delivery and the achievement of results; evaluation is one-off, typically external and goes beyond results by questioning their value.

- With better data collection tools for monitoring, information that was traditionally only collected occasionally through evaluations (e.g. through a baseline, mid-term and final survey) now becomes available on a continuous basis.
- The increasing demand for real-time information increases the need for solid monitoring information over much less frequent evaluations.

## INVENTORY OF INNOVATIONS

Eleven innovations have been identified based on extensive research and analysis. Increased frequency of input and broader citizen participation are key features in most of the innovations presented in this paper. In addition, many present cost-conscious and flexible approaches to managing and assuring quality of policies, programmes and service delivery. The first eight innovations promote citizen engagement, with the first five requiring active participation of citizens and the next three reflecting more passive engagement. The ninth is designed to enhance the usefulness and accessibility of the information collected, and the final two present progressive methodologies for more credibly measuring and interpreting results. Most of the innovations are not mutually exclusive. For example, mobile data collection can be used with micro-narratives to provide different perspectives on a particular initiative.

### 1. Crowdsourcing

#### *What is it?*

- A large number of people **actively** report on a situation around them, often using mobile phone technology and open source software platforms; and
- ‘Citizen reporting’ or ‘See something, text something’.

#### *Why is it innovative?*

- While traditional M&E is sometimes perceived as intrusive and extractive, citizen reporting is a monitoring and evaluation technique that results in a win-win situation for M&E, potentially leading to greater citizen participation and civic engagement (**process improvement**);
- Allows data collection: a) on a scope usually not feasible through traditional M&E tools; and b) on sensitive issues that more traditional tools would struggle to cover (**catalytic**); and
- A great variety of open source software platforms already exist and the approach is implemented in a number of countries and projects (**concrete**).

### How and when best to use it

- Where requirements for data collection go beyond the scope of more traditional monitoring or evaluations, or when quantitative information is required; and
- For sensitive issues where anonymity is preferred (e.g. corruption).

### Advantages

- Can gather massive, location-specific data in real-time with lower running costs than more traditional methods;<sup>38</sup>
- Can boost civic engagement by establishing direct channels of communication from the ground up; and
- If systems are set up right, crowdsourced data tends to be more difficult to manipulate and less vulnerable to biased interpretation, therefore potentially increasing independence and credibility.

### Disadvantages

- Requires incentives for citizens to continuously participate; and
- Requires tailoring a crowdsourcing platform.

### Tools

- **Ushahidi platform:** a crowdsourcing mapping tool;<sup>39</sup>
- **SeeClickFix:** a communications platform for citizens to report non-emergency issues and for governments to track, manage and reply;<sup>40</sup>
- **FrontlineSMS:** an open source software to distribute and collect information via text messages;<sup>41</sup>
- **RapidSMS:** a open-source framework for dynamic data collection, logistics coordination and communication, leveraging basic mobile phone text technology;<sup>42</sup> and
- **Ideascale:** a platform for stakeholders to share, vote and discuss feedback.<sup>43</sup>

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38 E.g. checking all the defects in the traffic lights by having city officials patrol is expensive, while asking citizens or taxi drivers to report defective traffic lights is cheaper.

39 See [ushahidi.com](http://ushahidi.com).

40 See [seeclickfix.com](http://seeclickfix.com).

41 See [frontlinesms.com](http://frontlinesms.com).

42 See [rapidsms.org](http://rapidsms.org).

43 See [ideascale.com](http://ideascale.com).

## 2. Real-time, simple reporting

### *What is it?*

- A means to reduce to a minimum the formal reporting requirements for programme and project managers and free up their time to provide more frequent, real-time updates, which may include text, pictures, videos that can be made by computer or mobile devices.

### *Why is it innovative?*

- Can overcome an often-voiced dissatisfaction with excessive, detailed and frequent reporting requirements that may result in unread and under-used reports (**impact**);
- Through mutual agreement, the tendency towards more and more data collection and analysis is reversed; long-established but possibly outdated reporting practices are eliminated or complemented, allowing instead for real-time reporting (**catalytic**); and
- Concepts and digital platforms for real-time, simple reporting exist and are in use (**concrete**).

### *How and when best to use it*

- Can be used for all types of public policies, services and programmes if the minimum information needs can be covered by the short reports.

### *Advantages*

- Near real-time updating of progress and results;
- The voices and faces of citizens become more and more directly visible through photos, video and audio recordings;
- Works well with organizations or units with a large number of programmes, projects and partners; and
- Short but real-time reports are more likely to be used by management for decision-making.

### *Disadvantages*

- Reports are limited to key information and do not go into much detail; and
- Potential tendency to collect the most easy-to-measure data, resulting in a reporting bias.

## Tools

- **Akvo Really Simple Reporting** is a Web-based system that brings complex networks of projects online and instantly shares progress with everyone involved and interested on multiple websites.<sup>44</sup>

## 3. Participatory statistics

### What is it?

- An approach in which local people themselves generate statistics; and
- Participatory techniques (e.g. participatory mapping, ‘ten seeds technique’, pairwise ranking, proportional piling, matrix ranking) are replicated with a large number of groups to produce robust quantitative data.

### Why is it innovative?

- Participatory statistics change the paradigm that data collection is a top-down, centralized process by decentralizing statistical data collection and empowering citizens who are most familiar with local information (**catalytic**);
- Can make it possible to collect statistics on sensitive topics that are largely inaccessible to standard surveys (**process improvement**); and
- Participatory approaches to M&E are well-tested; aggregation to produce statistics—even on the national scale—is increasingly tested and applied following methodological breakthroughs in the 2000s (**concrete**).

### How and when best to use it

- Particularly suitable for social and census mapping, household listing and scoring, well-being ranking, trend and change analysis, seasonal diagramming, preference ranking, causal linkage analysis and problem trees; and
- If empowerment is part of a public policy, service or programme.

### Advantages

- When carefully aggregated and triangulated, participatory statistics can produce more valid, reliable, and accurate data for M&E;
- Can empower citizens through an M&E process that has traditionally been highly extractive and externally controlled; and

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44 See [akvo.org/web/akvo-rsr](http://akvo.org/web/akvo-rsr).



- Generating and aggregating local data can make statistics more accurate, especially on sensitive issues, thus increasing accuracy, reliability and ultimately credibility and potential use of data.

### *Disadvantages*

- Can be time-consuming if citizens are asked to collect the necessary data; and
- Needs to be built into a policy, service delivery or programme from the very beginning.

### *Tools*

- **Participatory Methods website**, Institute of Development Studies.<sup>45</sup>

## **4. Mobile data collection**

### *What is it?*

- The targeted gathering of structured information using mobile phones, tablets or PDAs using a special software application; and
- Differs from citizen feedback or crowdsourcing, which mine unstructured digital information; instead, mobile data collection systems run designed surveys which collect specific information from the target audience.

### *Why is it innovative?*

- In addition to an incremental change from paper-based surveys, mobile data collection can include **completely new information** in designed surveys: geographic location through automatic geo-tagging, photographs and video (e.g. as additional evidence that corroborates information obtained through a questionnaire) and audio (to record survey responses as proof and for further analysis) (**catalytic**); and
- Availability of inexpensive mobile phones and specialized software platforms (to build a mobile data collection survey) are widely available (**concrete**).

### *How and when best to use it*

- Where the advantages of mobile data collection outweigh the advantages of a more traditional paper-based survey; and
- Where data collection requires or significantly benefits from audio, video or geographic information.

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45 See [participatorymethods.org](http://participatorymethods.org).

### Advantages

- Can improve the timeliness and accuracy of the data collection; and
- Platforms allow one to customize the survey to include photographs, voice recordings, GPS coordinates and other information usually not collected through paper-based surveys.

### Disadvantages

- Technology alone will not improve the survey design or instrument; and
- Potential bias in favour of well-educated or well-off citizens.

### Tools

- Numerous platforms and tools.<sup>46</sup>

## 5. The micro-narrative

### What is it?

- The collection and aggregation of thousands of short stories from citizens using special algorithms to gain insight into real-time issues and changes in society.

### Why is it innovative?

- Information collected in the shape of stories is interpreted by the person who has told a story, therefore removing the need for—and the potential bias of—a third party to interpret the data; this meets a core challenge for M&E by reducing or eliminating potential biases of monitoring staff and evaluators (**process improvement**);
- By using a large number of stories, this approach turns previously mostly qualitative data (e.g. in the form of a limited number of not representative case studies included in an evaluation) into aggregated statistical data; the approach has the potential to replace traditional monitoring tools like surveys and focus groups (**catalytic**); and
- Pattern detection software for analysing micro-narratives exists, and the approach is already implemented in a number of countries and projects (**concrete**).

### How and when best to use it

- When real-time quantitative information from a large number of beneficiaries is required and cannot otherwise be collected.

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<sup>46</sup> For a detailed list, see “NOMAD Preliminary List of Mobile Data Collection Technologies,” Annex 1, in *Mobile Data Collection Systems: A review of the current state of the field*, June 2011, NOMAD; available at [humanitarian-nomad.org/wp-content/uploads/2013/03/NOMAD-MDC-Research.pdf](http://humanitarian-nomad.org/wp-content/uploads/2013/03/NOMAD-MDC-Research.pdf).

### Advantages

- Provides governments, for example, access to real-time data for faster, more informed decision-making;
- Allows evaluators to collect independent quantitative information from a potentially large number of citizens, potentially increasing the credibility of data collected;
- Makes it possible to design, monitor and evaluate evidence-based policies and programmes under conditions of uncertainty;
- By detecting weak initial signals in the stories collected, this approach can provide early warning signs for policy or programme implementation in the communities they are trying to effect; this introduces the possibility for the first time of predicting future developments and building foresight into decision-making; and
- Lower running costs once set up compared to repeated surveys.

### Disadvantages

- High initial investment in pattern detection software (e.g. proprietary software like Sensemaker) and information campaigns to inform and motivate participants; and
- Citizens must have the skills and continuous incentives to participate.

### Tools

- **Sensemaker**, a proprietary pattern detection software for analysing micro-narrative;<sup>47</sup> and
- **GlobalGiving Story Tools**.<sup>48</sup>

## 6. Data exhaust

### What is it?

- Wherever citizens use mobile phones or access web content, they are leaving trails behind in the form of transactional data called 'data exhaust'; and
- Data exhaust is massive, passively collected transactional data from people's use of digital services like mobile phones and web content such as news media and social media interactions, which distinguishes it from other elements of big data such as citizen reporting, crowdsourcing or physical sensors.

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47 See [sensemaker-suite.com](http://sensemaker-suite.com) by Cognitive Edge ([cognitive-edge.com](http://cognitive-edge.com)).

48 See [globalgiving.org/story-tools](http://globalgiving.org/story-tools).

### *Why is it innovative?*

- The availability of passive transactional data has increased exponentially; the private sector is already using innovative technologies to analyse data exhaust from commercial services to understand customers, identify new markets and make investment decisions; for monitoring and evaluating public policies, services and programmes, analysing existing data exhaust can dramatically change how M&E is done and what data is available for M&E (**catalytic**); and
- Commercial services have demonstrated that making use of data exhaust is possible and useful (**concrete**).

### *How and when best to use it*

- When analysed in bulk, data exhaust makes it possible to calculate the current status of entire communities and identify changes happening in real-time through Web-based and social media search queries; and
- This conversational data can also be used to predict human behaviour.

### *Advantages*

- Data is already collected and available; and
- Can allow mining of massive qualitative data to distil quantitative information that would otherwise be beyond the reach of traditional M&E, thereby increasing the potential credibility of monitoring or an evaluation.

### *Disadvantages*

- Potential bias that makes digital data skewed in favour of better-educated, well-off citizens while neglecting those less articulate or with less access to digital services.

### *Tools*

- **CellCensus** makes use of cell phone records, which show the social network of a person or his/her mobility patterns and are strongly predictive of socio-economic factors;<sup>49</sup>
- **Google Trends**, a free tool to track the level of Google search requests over time;<sup>50</sup> and
- **Recorded Future**, a commercial service that scans tens of thousands of digital sources to explore the past, present and predicted future of a wide variety of things.<sup>51</sup>

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49 See [vanessafriasmartinez.org/CenCell.html](http://vanessafriasmartinez.org/CenCell.html).

50 See [google.com/trends](http://google.com/trends).

51 See [recordedfuture.com](http://recordedfuture.com).

## 7. Intelligent infrastructure

### *What is it?*

- Equipping all—or a sample of—infrastructure or items (e.g. roads, bridges, buildings, water treatment systems, hand washing stations, latrines or cook stoves) with low-cost, remotely accessible electronic sensors.

### *Why is it innovative?*

- Automatization of data collection can radically change how and how frequently data is collected in cases where policies, programmes or service delivery include infrastructure or items (**process improvement**);
- Involves unconventional partnerships between high-tech research departments, start-up enterprises, governments and development organizations (**catalytic**); and
- Inexpensive electronic sensors have recently become commercially available, but there are only a few examples where they have started to be used for M&E (**concrete**).

### *How and when best to use it*

- When monitoring or an evaluation attempt to measure and track over time the value of infrastructure or public services to the people (e.g. to determine whether the infrastructure is actually used enough to justify the cost);
- Low-cost, low-power, reliable electronic sensors attached to infrastructure relay usage or operational data in near real-time to the Internet via cellular phone technology, feeding into an automated, remote monitoring system; and
- When data is actually required for a certain purpose, and not simply because the technology exists.

### *Advantages*

- The massive amounts of data generated can be used to better understand programmatic, social, economic, and seasonal changes and behavioural patterns that influence the quality of a policy or a service;
- Real-time data on infrastructure or public service use makes faster, more informed decisions possible;
- Potentially lower running costs once system is set up compared to repeated sample surveys using experts and enumerators; and
- More objective and real-time operational data on the usage and performance of infrastructure or services may result in greater credibility and use of monitoring information and evaluations.

### Disadvantages

- Initially expensive, high-tech monitoring option which requires special technical expertise;
- Lack of maintenance or malfunctioning equipment can ‘contaminate’ data; and
- Potential privacy concerns if users, or user groups, can be identified.

### Tools

- **SWEETSense**, a technology and concept tested and demonstrated by the Sustainable Water, Energy and Environmental Technologies Laboratory (SWEETLab) at the Portland State University.<sup>52</sup>

## 8. Remote sensing

### What is it?

- Observing and analysing a distant target using information from the electromagnetic spectrum of satellites, aircraft or other airborne devices; and
- Passive sensors detect natural radiation (e.g. reflected sunlight through film photography); active remote sensing involves the emitting of energy in order to scan objects and areas.

### Why is it innovative?

- Since the early days of satellite remote sensing in the 1950s, it has been applied to many disciplines in natural science; applying remote sensing to social research and monitoring and evaluations of social public policies and programmes can have a potentially great impact for large-area monitoring (**process improvement**);
- Allows remote monitoring in areas previously inaccessible due to physical barriers or security concerns (**catalytic**); and
- Passive and active remote sensing information and commercial technology for collecting information (e.g. mini-drones, pattern recognition software) is available (**practical**).

### How and when best to use it

- When access is limited due to physical barriers or security concerns;

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52 See [sweetlab.org/sweetsense](http://sweetlab.org/sweetsense).

- For observable changes on the Earth's surface (such as agriculture, deforestation, glacial features and oceans) and natural resource management in general, but also for monitoring social public policies and programmes related to urban areas, demography, land use and land cover, humanitarian conflicts or disasters, or as a proxy for wealth; and
- For social policies and programmes, remote-sensing data might be at its most valuable when used in combination with traditional methods, such as surveys, public records, interviews and direct observation.

### *Advantages*

- Possible to collect data on dangerous or inaccessible areas; and
- Observed objects or people are not disturbed.

### *Disadvantages*

- Privacy concerns over government misuse of information; and
- Potentially high costs for obtaining images or for primary data collection using remote sensors.

### *Tools*

- **Sensefly** operates autonomous mini-drones and related software solutions for accurate mapping of mining sites, quarries, forests, construction sites, crops, etc.<sup>53</sup>

## **9. Data visualization**

### *What is it?*

- Representation of data graphically and interactively, often in the form of videos, interactive websites, infographics, timelines, data dashboards<sup>54</sup> and maps.<sup>55</sup>

### *Why is it innovative?*

- Previously heavily reliant on text to communicate monitoring or evaluation findings, the increasing use of suitable data visualization tools in M&E changes the way data is analysed and represented (**catalytic**);

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53 See [sensefly.com](http://sensefly.com).

54 Visual displays of the most important information consolidated on a single screen or page.

55 Spatial and conceptual representations of important physical elements of an area to assist in identifying patterns (e.g. demographic mapping, GIS Mapping, Geotagging, social mapping, interactive mapping).

- The graphical and interactive presentation of data has the potential to dramatically increase the accessibility of complex data sets and, in turn, the use of the data (**process improvement**); and
- A great variety of free and commercial data visualization tools are available and increasingly used for monitoring, reporting and evaluations.

### *How and when best to use it*

- To better identify trends and patterns of complex or large data sets during the analysis phase of monitoring or of an evaluation; and
- To better communicate information resulting from monitoring or from evaluations.

### *Advantages*

- Effectively visualized data is more likely to be understood and used; and
- Visualized data can identify trends and patterns that could otherwise be unclear or difficult to discern.

### *Disadvantages*

- Visualization needs to fit the purpose of analysis and the intended target audience of communication; and
- Identifying and putting together data visualization can be time-consuming, or costly if outsourced.

### *Tools*

- **DevInfo**, a database system for organizing, storing and visualizing data in a uniform way;<sup>56</sup>
- **Tableau**, a set of software solutions to combine, analyse and visually show data;<sup>57</sup>
- **Google Fusion Tables**, a tool to combine, visualize and share data;<sup>58</sup>
- **Visual.ly**<sup>59</sup> or **Easel.ly**,<sup>60</sup> tools to get inspired by and/or commission infographics; and
- **TimelineJS**, a tool to establish visually-rich, interactive timelines.<sup>61</sup>

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56 See [devinfo.org](http://devinfo.org).

57 See [tableausoftware.com](http://tableausoftware.com).

58 See [google.com/drive/apps.html#fusiontables](http://google.com/drive/apps.html#fusiontables).

59 See [visual.ly](http://visual.ly).

60 See [easel.ly](http://easel.ly).

61 See [timeline.verite.com](http://timeline.verite.com).



## 10. Multilevel mixed evaluation method

### *What is it?*

- While parallel or sequential mixed methods have long been a typical design for development evaluations, this approach includes the deliberate, massive and creative use of mixed (quantitative and qualitative) methods on multiple levels for complex evaluations, particularly for service delivery systems.

### *Why is it innovative?*

- With multilevel mixed methods rapidly becoming the standard method in evaluations, this leads to a paradigm change in evaluation methodology; evaluations using a single method or only nominally applying a mixed-method approach (e.g. a largely quantitative evaluation complemented with a limited number of focus group discussions) may stop being acceptable to governments and development organizations (**process improvement**); and
- While not yet widely used for evaluations, tools and guidelines exist that describe multilevel mixed methods, and some evaluations have experimented with the approach (**concrete**).

### *How and when best to use it*

- Particularly suitable for the evaluation of service delivery systems (e.g. district education departments, state-level health services, a national programme to strengthen municipal governments) that require description and analysis of links between different levels; and
- For very complex and potentially expensive evaluations where multilevel mixed methods can provide valid and credible findings on the basis of smaller and more economical samples.

### *Advantages*

- The multiple mix of quantitative and qualitative methods can lead to more validity, reliability and variety of findings, insights into sensitive subjects, and the revealing of unexpected findings with policy implications; and
- Multiple options for triangulation between different quantitative and qualitative methods and data sources.

### *Disadvantages*

- Requires careful and deliberate planning of an appropriate methodological mix to be credible; and
- Usually requires a team of evaluators with experience in quantitative and qualitative methods and in how to combine them at multiple levels.

## Tools

- “Introduction to Mixed Methods in Impact Evaluation”<sup>62</sup>

## 11. Outcome harvesting

### What is it?

- An evaluation approach that, unlike some evaluation methods, does not measure progress towards predetermined outcomes, but rather collects evidence of what has been achieved and works backward to determine whether and how the project or intervention contributed to the change; and
- An approach inspired by ‘outcome mapping’.<sup>63</sup>

### Why is it innovative?

- Allows the evaluation of policies or programmes where relations of cause and effect are not fully understood and that have previously been difficult to evaluate (**catalytic**);
- Is suitable to search and identify unintended results that frequently escape more traditional evaluation methods (**process improvement**); and
- The outcome harvesting approach has been tested in evaluations since 2010 (**concrete**) (Wilson-Grau 2012).

### How and when best to use it

- When relationships of cause-effect of public policies or services are unknown; and
- In situations where complexities are high and outcomes are ill-defined or unclear (e.g. advocacy work, networks, research centres and think tanks).

### Advantage

- Can be used for complex policies, services or programmes that are not based on a clear results chain or theory of change.

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62 Bamberger 2012, InterAction/The Rockefeller Foundation, Impact Evaluation Notes, No.3. August 2012. Available at [interaction.org/document/guidance-note-3-introduction-mixed-methods-impact-evaluation](http://interaction.org/document/guidance-note-3-introduction-mixed-methods-impact-evaluation).

63 Outcome mapping ([outcomemapping.ca](http://outcomemapping.ca)) is a related but broader approach that includes: a) intentional design; b) outcome and performance monitoring; and c) evaluation planning. Outcome harvesting is more narrow in scope, roughly the equivalent of steps 8, 9, 10 and 11 of outcome mapping (Wilson-Grau 2012).

### *Disadvantages*

- Participatory process to reach a consensus can be time-consuming; and
- A potential bias by evaluators in interpreting the expected outcome of public policies, programmes or services might skew findings.

### *Tools*

- **Outcome harvesting**<sup>64</sup>

## POLICY OPTIONS AND ACTIONS

### **Trends in innovation in monitoring and evaluation**

Analysis of the 11 key innovations identified above—which can result in process improvements, are catalytic for M&E and are sufficiently concrete—leads to some observations on current trends:

#### *Frequency of feedback increases*

With better data-collection tools, information that was traditionally only collected occasionally through planned M&E activities (e.g. through a baseline, mid-term and final survey) now becomes available on a continuous basis.

#### *Innovations depend upon increased citizen engagement*

Many of the interventions identified rely on increased citizen participation. Several open up direct communication channels with citizens or beneficiaries (e.g. crowdsourcing, real-time simple reporting, micro-narratives and participatory statistics).

#### *Innovations are being applied throughout the development cycle*

There is increasing demand for real-time information throughout the development process, and many of these innovative tools can be applied just as constructively for planning as for monitoring (e.g. crowdsourcing, micro-narrative, mobile data collection, data exhaust and data visualization).

#### *ICT sparks innovations in M&E*

Most of the key innovations identified have a strong information and communications technology (ICT) component (i.e. crowdsourcing, real-time simple reporting, mobile data collection, micro-narrative, data exhaust, intelligent infrastructure, remote sensing and data visualization). It appears that the sudden supply of sophisticated ICT-based M&E tools has sparked a wave of innovations in monitoring and evaluation that would not have been possible only a few years ago.

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64 See [outcomemapping.ca/resource/resource.php?id374](http://outcomemapping.ca/resource/resource.php?id374).

### *Academia, private sector and development organizations innovate*

Many of the innovations mentioned are initially developed or adapted by non-governmental organizations or bilateral or multilateral development organizations (many mobile data-collection platforms, real-time, simple reporting, for example, Akvo, data-visualization tools such as DevInfo and Gapminder, and crowdsourcing tools such as the Ushahidi platform, Frontline SMS or RapidSMS). Some are originating within the communities of academia and development practitioners (such as the multilevel mixed method, participatory statistics, outcome harvesting). A number of innovative tools are also coming from academia but using a private-sector approach (algorithm and software for micro-narrative such as Sensemaker, some crowdsourcing applications, and intelligent infrastructure like SWEETsense). Finally, a surprising number of innovative tools are coming from the private sector (remote sensing such as senseFly; data exhaust and data-visualization tools such as Tableau, Visual.ly, Easel.ly, TimelineJS; data exhaust such as Recorded Future or Google Trends; and some crowdsourcing tools such as SeeClickFix), which might indicate a greater reliance of development on commercial, private-sector innovation.

### **How to apply innovations: planning and programming considerations**

by facilitating the increased frequency of input and heightened citizen engagement, innovations in M&E have a series of implications for the entire development process. The innovations presented in this paper connect the M&E function to the planning and implementation processes, in that many of the innovations can just as easily be used to gather useful information for the design of more relevant policies, and that programmes, and their results frameworks, should reflect the fact that information can now be collected more frequently. These innovations also allow for more timely adjustments to policies, programmes and service delivery. Taken together, these aspects transition the M&E process into a more holistic management and assurance function that has implications for institutional capacities and processes:

#### *Build M&E into the planning phase*

Much more than with traditional M&E, which still often gets away with only vague statements on how M&E will be implemented in planning documents, many of the innovative approaches to M&E need to be built into the planning process of public policies, services or programmes. The current practice of tacking on M&E at the end of a plan is not sufficient for most innovative approaches, many of which require a lot of preparation (with the exception of the outcome harvesting tool, which is designed exactly to handle a situation where little thought was given to planning outcome-level M&E).

#### *Design theories of change to monitor intermediary outcomes*

Gathering real-time feedback allows for more frequent measurement of results. Theories of change should incorporate intermediate outcomes and indicators, so information on results at lower levels can be collected through fast feedback loops and used to make course corrections in programme implementation and service delivery.

### *Keep institutional planning and programming processes flexible*

Institutional processes need to be flexible enough to screen, pilot, scale up and absorb innovations—and, importantly, the insights they generate—in M&E systems. Rigid planning and programming frameworks and systems that are focused on budgets, activities or outputs are less likely to allow experimentation and adoption of innovative approaches to M&E. To promote innovation, governments may need to introduce incentives for institutions to pilot and scale up new approaches to M&E that go beyond existing national M&E requirements.

### *Strengthen internal capacities or partner with third parties*

Experts in planning, monitoring and evaluation do not necessarily understand innovations in information and communications technology. Conversely, the person developing information and communications technology tools does not necessarily understand managing for results. A key implication is that governments and organizations need to have the know-how to decide which information and communications technology solutions are appropriate for their needs and select the right tools for the job and the user. Especially for technological innovations, innovative M&E may require national or international technical expertise or services from the private sector, academia or elsewhere outside government (software for big data analysis, micro-narratives, mobile technology using SMS, sensors, etc.), or significant investment to increase national capacities for technological innovations.

### *Close the loop with citizens*

Many of the innovations discussed above will only work effectively if incentives for citizens, service users or programme participants to provide feedback and mechanisms for closing the loop are built right into the design. Participatory statistics, mobile data collection and micro-narratives, for example, require us to give information back to people for the approach to be sustainable in the long run. Citizen reporting is particularly dependent on fast, visible responses to information provided by a citizen or programme participant.

### *Ensure privacy needs are met*

As with more traditional tools and approaches for M&E, privacy needs have to be addressed. While innovative approaches typically pose more challenges with regard to privacy needs as data (and data sources) becomes more readily accessible (or sharable), the setting of privacy policies and ethical standards often lags behind technological advances. It is critical for policy makers as well as planners and implementers of innovative M&E to ensure the privacy of participants, so that they feel comfortable about engaging, and that the information collected is unbiased.

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