SCIENCE GRANTING COUNCILS INITIATIVE SGCI | IOSRS INITIATIVE DES ORGANISMES SUBVENTIONNAIRES DE LA RECHERCHE SCIENTIFIQUE

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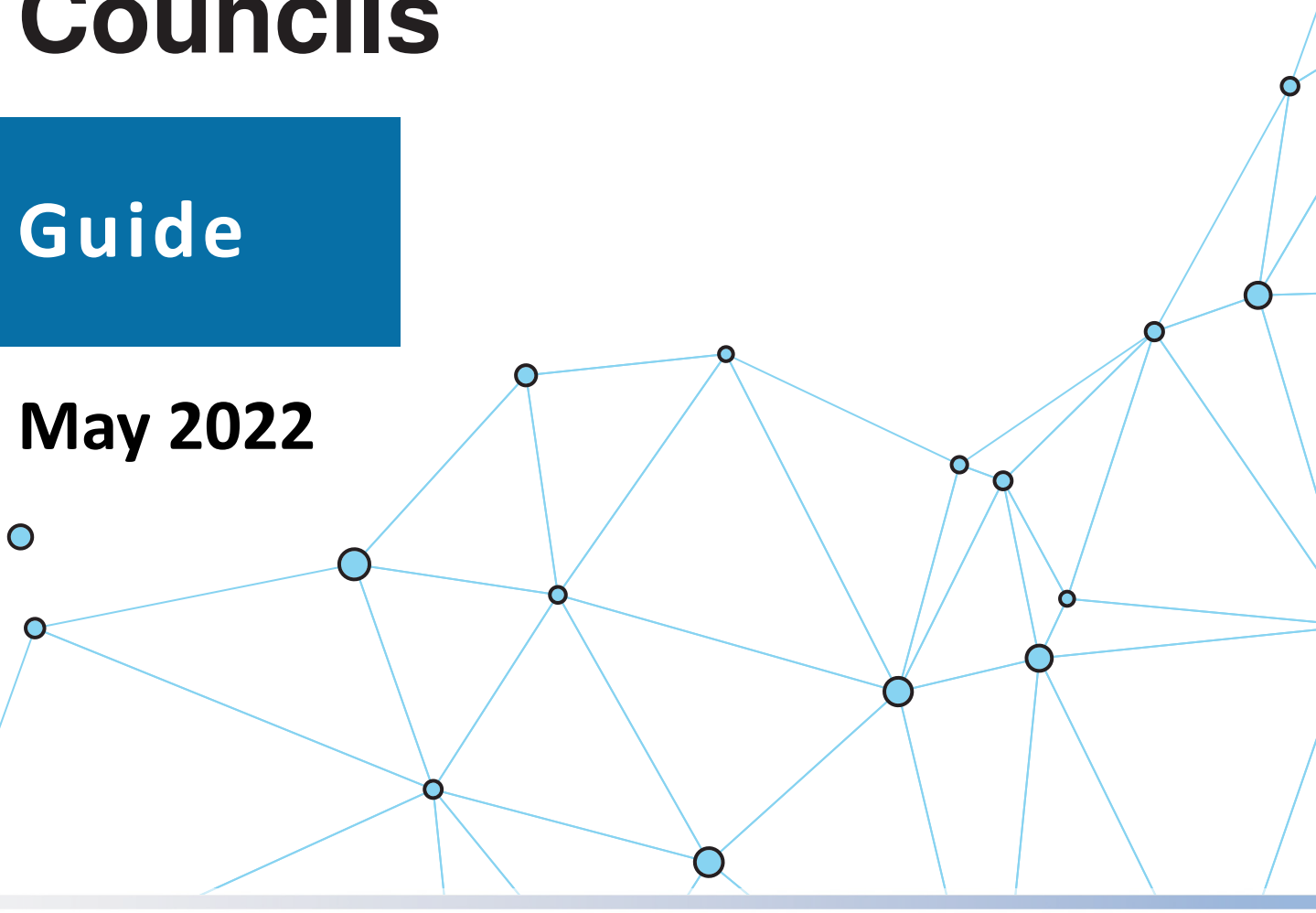
Strengthening Monitoring, Evaluation and Learning in African Science Granting Councils

Guide

May 2022



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The purpose of this document is to provide support to Science Granting Councils (SGCs) with a template to review the monitoring, evaluation, and learning (MEL) activities in the context of different approaches to understanding MEL. It predominately focuses on assisting Councils in collecting data that is useful to their operations, i.e., data that allows them to understand what is working, what is not working, where there are bottlenecks, and where there are opportunities for change or expansion. In so doing, such data or evidence can be used to assist in their influence on policy processes. This document does not cover mainstream MEL theories and ways of working, as there are already excellent resources available for Councils in this area. Instead, it focuses on enhancing understanding MEL's value in the context of Councils' operations and mandates.

Authorship

Prof. Rebecca Hanlin wrote this report for the African Centre for Technology Studies (ACTS) based in Nairobi, Kenya, under the auspices of the Evi-Pol project. ACTS is a collaborative technical agency within the Science Granting Councils Initiative (SGCI) and runs the Evi-Pol project within this Initiative. The Evi-Pol project is focused on enhancing councils' capacity to understand better (a) what data or evidence can and should be collected and (b) how this evidence can be utilized to ensure more appropriate policy-making and resulting impactful research.

Funding

ACTS' Evi-Pol project (grant number: 109573) is funded by the Canadian International Development Research Centre (IDRC) as coordinators of the SGCI. The SGCI receives funding from IDRC, the South African National Research Foundation (NRF), the Swedish International Development Cooperation Agency (Sida), the British Foreign Commonwealth and Development Office (FCDO), the Germany Research Foundation (DFG), and the Norwegian Agency for Development Cooperation (Norad).

Acknowledgments

The author would like to thank all members of the Evi-Pol team who have contributed comments to this document and the preceding project documents, which helped scope this document. In addition, she would like to thank the SGCI Heads of Councils, Coordinators, and their MEL officers for their input into this document and feedback on earlier presentations of the MEL work of the Evi-Pol project. Without Councils's input and support, this document would not have been possible. Thanks also to the SGCI MEL Lead for his input and those of the MEL consultants contracted to assist the Councils through the Evi-Pol project.

Recommended citation

Hanlin, R. (2022). *Strengthening Monitoring Evaluation and Learning in African Science Granting Councils: A Guide.* Nairobi: ACTS.

CONTENT

1. What is MEL?

MEL is made up of three distinct but interlinked activities (see Box 1) that occur at different times: monitoring, evaluation, and learning. Until the late 2000s, there was a predominant focus on the M (monitoring) and E (evaluation) and less on the L (learning). Increasingly there is recognition that if you do not also include learning, the role of M&E is likely to become little more than a reporting mechanism. There is an acknowledgment that MEL is an essential part of an organization's activities and can actively assist in decision-making. As such, it does not just have to be used to respond to the needs of international development partners or funders. MEL activities can be conducted at an organisation-wide level or nested MEL plans can be developed that are specific for the contexts of different departments or functions within an organisation.

Box 1: Definitions

The core definitions relating to MEL and its discussion in this guide are provided below.

Term	Definition
Monitoring	The process of recording progress of activity e.g. activity expenditure levels vs original plans. This occurs on a regular and frequent basis and can take the form of formal reviews or reporting activities or more ad hoc check-ins and meetings.
Evaluation	A formative (midway) or summative (endline) review of progress of activity implementation. Occurs at a regular but not frequent points in time (usually every few months or years) to assess change over time.
Learning	In the context of this guide, learning refers to understanding what works and what does not work and using this to inform future strategy and activity.
Data	Numbers, statistics, figures, words that on their own have no meaning or symbolism unless processed to produce insights.
Evidence	Contextualised data that is used to make an insightful argument.
Policy process	The lifecycle of a plan/statement/ guideline that will be used to provide direction. The lifecycle starts with agenda setting moves through formulation to implementation to evaluation and back to agenda setting.

For more information on MEL definitions see: www.BetterEvaluation.org

For more information on difference between data, information, knowledge, and evidence see: Dammann, O., 2018. Data, information, evidence, and knowledge: a proposal for health informatics and data science. *Online journal of public health informatics*, *10*(3)

For more information on the policy process see: Diyamett, B. et al (2019), *STI policy training for Africa: a basic module on reconciling theory, practice, and policies.* Dar es Salaam: STIPRO.

As a result of this history, MEL is increasingly being treated more appropriately. Organizations now often have MEL officers – someone dedicated to designing and coordinating the implementation of MEL activities in projects, programmes, departments and/or at organisational level. Increasingly there is a budget line for MEL in projects and programmes which is often recommended to be at least 5% and no more than 10% of the total budget. These are necessary for MEL to be effective and not just procedural. Unfortunately, there is still a tendency – despite this change – of building MEL after programmes and projects have started and or in a restricted manner at the organizational level in the form of reporting in respect of Key Performance Indicators (KPIs) or targets and or progress against a strategic or operational plan only. The learning element of MEL is the feedback loop of collecting the data collected from monitoring and/or evaluation.

There is a whole world of expertise and training resources available on MEL, so this Guide will not go into this now. There is an existing guide written as part of the Science Granting Councils Initiative or SGCI (Scinnovent Centre, 2020), and generic project and programme MEL resources are available from various sources. The Resources section below provides links to some of these.

That said, before the Guide reviews where SGCs are in MEL activities (as of late 2021), it is necessary to comment on the importance of focusing on "outcomes" or the longer-term achievements Councils aim to have.

1.1 The importance of focusing on outcomes and learning

Outcomes are longer-term effects on the lives and activities of others that projects expect to have. We use the term 'expect to have here because, increasingly, there is a requirement that projects will build into their design a MEL element and develop an intervention logic from project inception (see Figure 1).

This intervention logic model considers the impact that a project intends to have immediately. This is considered in terms of the initial outputs or deliverables a project knows it can achieve (e.g., numbers of PhD students trained, publications produced, start-ups incubated, etc.). It also looks at those the project can influence in the longer term (referred to as outcomes and impacts). Such an approach usually requires a project to develop either a theory of change (to define the change it wants to achieve) and a results-based framework (for collecting data against the ToC – aimed at testing the ToC). Details of these approaches are provided in Box 2.

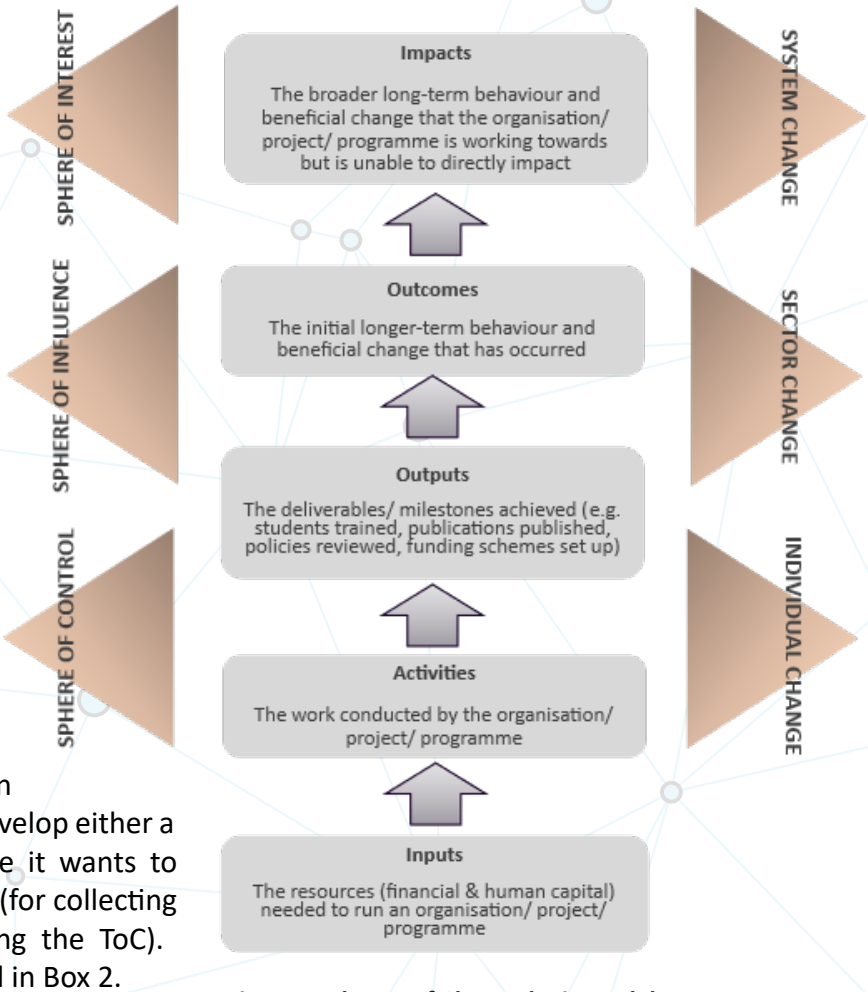


Figure 1: Theory of Change logic model

However, focusing on theories of change is not only useful at a project level. There is increasing recognition of the importance of using this approach at the organisational level. As a result, many organisations are considering or have introduced theories of change and/ or results-based frameworks into their strategic planning process.

Such an approach is the start of fully enabling MEL to become more than just a perfunctory action within an organisation. It allows the creation of points to reflect on the progress that moves outside of routine reporting, requiring reflections on broader impacts. It requires organisations to consider how they work and interact with other stakeholders and end beneficiaries. It also involves embedding learning, and most importantly, learning spaces, into an organisation's activities at regular intervals.

Box 2: Outcomes

Outcomes are part of a broader logic of intervention (see Figure 1) and relate to change that is possible because of your organisation's/ project's/ programme's activities in the short to medium term. This change could occur in behaviour, action, practice, and relationships, that may or may not have been intended and which could be positive or negative. No change can also be deemed an outcome.

Approach	Description
Theory of change	A way of thinking about the behaviour change (impact) you want to have or that is occurring/ should occur/ has been occurring.
Results based framework	A similar approach but usually tabular instead of diagrammatic with a focus on quantitative or qualitative indicators and measurement.
Outcomes harvesting	Can occur at the start (using outcome mapping) but harvesting tends to occur after a period of intervention or activity and provides a way of thinking about changes seen and experienced.It allows for unintended and negative outcomes to be noted (*vis-à-vis* pre-intervention outcome mapping approaches which often focus only on the positive and can lead to tunnel vision, i.e., seeing only what you are looking for).

For more on outcomes see: Wilson-Grau, R. and Britt, H., (2012). *Outcome harvesting*. Cairo: Ford Foundation

2. MEL and science granting councils

How African science councils interact with MEL, when they interact with it and how it is very much dependent on their functions or mandates. There is no 'one-size-fits-all' possibility for MEL across Councils. MEL plans must be tailored to the specific functions of Councils. That said, there are several core areas of activity that most – if not all – African science councils perform, and for these, a set of minimum data points can be identified. These are provided in Annex 1 and discussed in more depth in Section 3.

This Section is based on a desk review of MEL documents provided by Councils to ACTS in 2021 as part of its efforts under the Evi-Pol project and a review of material on Councils' websites conducted to augment the data received. In total, 44 documents were reviewed across 8 councils from Botswana, Burkina Faso, Kenya, Malawi, Namibia, Tanzania and Zambia.

The result of this review has been the development of a new MEL typology which we believe will be helpful to Councils in considering how they reflect on the types of MEL that they conduct and, more specifically, the gaps in MEL data that they currently collect. This typology is now outlined before a review of the status of MEL activities in the above-mentioned 8 Councils from within the SGCI is provided.

2.1 A new MEL typology

In reviewing how African science councils interact with MEL, we found three distinct types of MEL activity. We distinguish between these as follows:

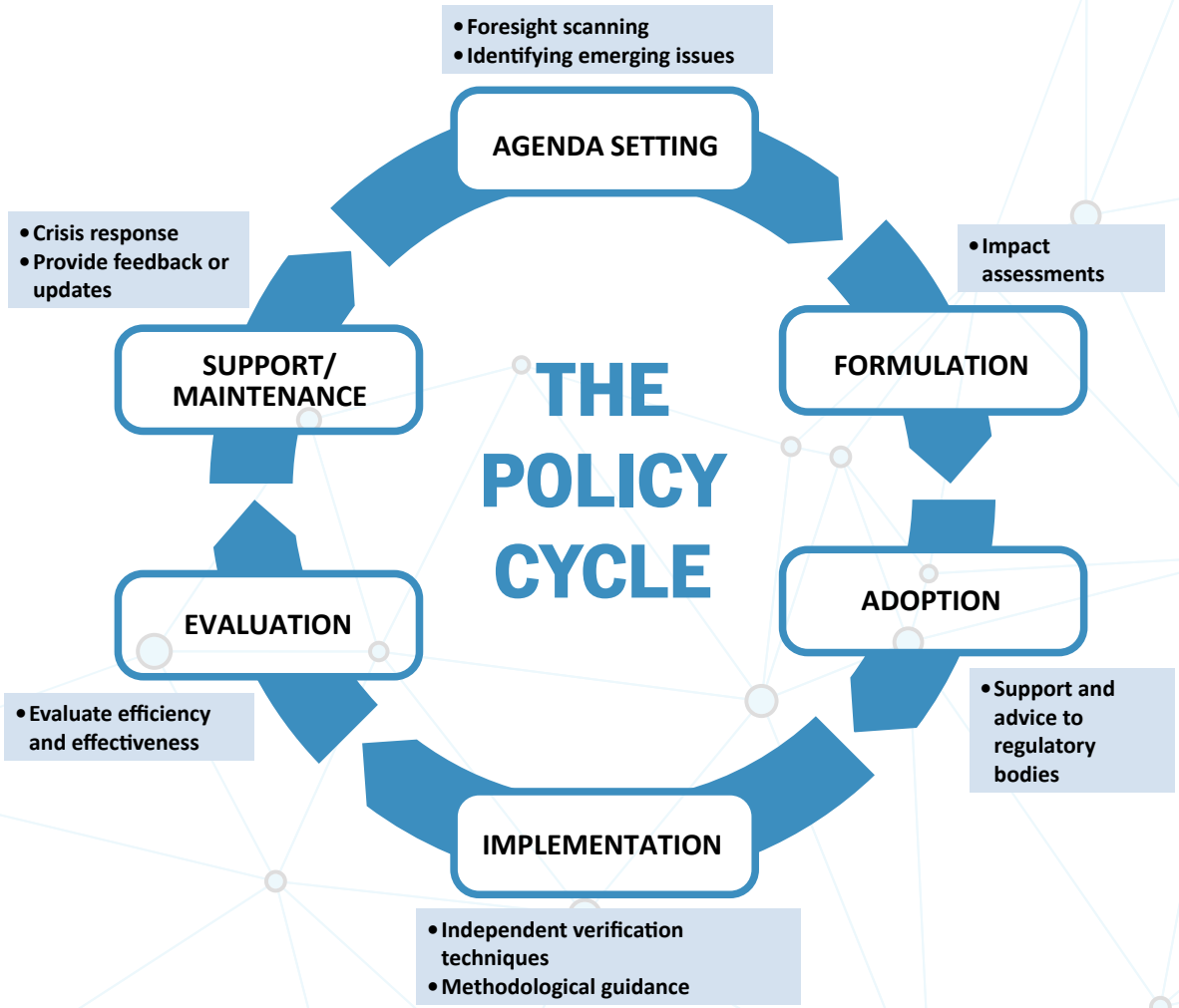
MEL of policy	This refers to the review of the STI policy in a country. Some councils are mandated to manage the STI policy and oversee the review and update of this policy.
MEL as policy action	This focuses on measuring (monitoring) and evaluating the status of STIs in the country and how it is working towards achieving its various STI policy goals.
Organisational MEL	This is MEL that assesses how an organisation is operating and performing against its mandate and objectives. As such, it can include MEL of the first two areas; should these be mandates of the organisation.

Each of these MEL typologies will now be introduced in a little more detail.

2.1.1 MEL of policy

This refers to the review and evaluation of a country's STI policy (or equivalent) (see Table 2 for a list of STI policies in SGCI countries). This first type of MEL has become increasingly popular with the recognition of the importance of regularly updating policy documents. There is a well-known public policy process whereby a plan of action is written down and codified into a policy. The final document might be a parliamentary bill and eventually an Act of Parliament, but it could also be a government regulatory document or statement, which are regularly referred to under the heading of "policies." The public policy process follows a lifecycle that starts with agenda setting (where an issue becomes important due to discussions and the actions of lobbying by different stakeholders) and moves through formulation (i.e., the development of a codified or written up document that may or may not be legally binding) to implementation of the codified policy. The last two stages refer to evaluation or the review of progress and what works or does not within the policy. It also often provides a chance to reflect on what should be changed in the policy. Any identified changes return the policy discussions to trying to influence the agenda to ensure the policy is modified (see Figure 2). The role of the SGCs in the policy process has been discussed in depth by two documents created for the SGCI (Diyamett et al., 201; and Bolo, 2022).

Figure 2: The policy process



Source: Reproduced from Diyamett et al, 2019

The MEL of the national STI policy occurs either at the evaluation stage of the policy process or the formulation stage, depending on whether there is an existing relevant policy to review and revise.

How an STI policy document is reviewed and evaluated is individualised by each country but often follows these general steps:

1. Review best practices elsewhere
2. Conduct stakeholder engagements and in-depth interviews with stakeholders
3. Conduct a landscape analysis of the STI situation in the country
4. Update the document, so it is fit for purpose

Some countries use their frameworks and approaches for this. Others make use of evaluation frameworks developed by others. The most well-known of these other approaches are introduced in Box 3. These often go further than the traditional cyclical updating of policies that occur as standard in the policy process. Often, these occur as an explicit activity and are independent of routine policy update cycles. That said, they have been built into routine STI policy reviews in some countries, e.g., Namibia and Mozambique have utilized the UNESCO Go-Spin methodology as part of their STI policy review processes between 2020 and 2022. These methodologies tend to focus on broader outcomes and impacts, i.e., how the STI policy fits with the sustainable development goals and not just the issues affecting the country itself or its related developmental goals.

Box 3

STI Policy Review Methodologies

Methodology	Overview
UNCTAD STI policy (STIP) review	These "includes a diagnosis of the national system of innovation (NSI), an assessment of the STI policies in place, and is normally complemented by in-depth studies of specific sectors, institutions or STI-related problems that are of particular relevance to the country under review."
UNESCO Go-SPIN	"A comprehensive study of all the science, technology and innovation (STI) policies can be developed by UNESCO and published in the online series of GO-SPIN country profiles "Mapping Research and Innovation". This includes a description and analysis of the components of a country's STI system."
OECD Review of Innovation Policy	These provide "comprehensive assessment of the innovation system of individual OECD member and partner countries, focusing on the role of government. They provide concrete recommendations on how to improve policies which impact on innovation performance, including R&D policies. Each review identifies good practices from which other countries can learn." Only South Africa has had an OECD review conducted and this took place over 10 years ago.
STI for SDG roadmaps	Currently at a pilot stage this provides a means to review STI activity in a country against 10 elements within three categories: i) analytical and deliberative inputs; ii) policy outputs; and iii) process and implementation. It focuses on how to ensure STI policy is focused on achieving one or more of the SDGs.

Source: *https://unctad.org/topic/science-technology-and-innovation/STI4D-Reviews; https://en.unesco.org/go-spin/country-profiles; https://www.oecd.org/sti/inno/oecd-reviews-of-innovation-policy.htm and; https://sdgs.un.org/tfm#sti_roadmaps*

2.1.2 MEL of policy action

This second type of MEL activity is focused on ensuring that the STI policy is implemented across all levels of government, stakeholders, and the broader community. It focuses on monitoring, measuring, and evaluating the status of STIs in the country and how it is working towards achieving its various STI policy goals. The approaches outlined in Box 3 conduct elements of this type of MEL. However, routine tools and frameworks are also used in each country. These include routine collection and analysis of R&D, Innovation, Research & Innovation monitoring, and higher education survey data.

These activities are also linked to the strategic plans and/or implementation plans drawn up alongside the STI policy at the country level. These increasingly include a series of key performance indicators across each STI policy's objectives against which progress is measured.

2.1.3 MEL at organisational level

More broadly, and incorporating the above two areas, it is recommended that science councils have a MEL framework that outlines the assessment of its operations and performance monitoring against agreed criteria and timeframe. The MEL framework is often a table and can be completed using the logical framework or a similar approach. An associated MEL plan will outline how this framework will be operationalised, i.e., when and where MEL activities will take place, who will undertake them, etc.

These MEL frameworks and plans are often associated with the organization's yearly planning and strategic monitoring cycles and/or parent line ministry.

Such frameworks and plans are overarching across the organisation and therefore differ from individual project or programme MEL (although these are recommended to be nested within the organisational level documents).

As such, these organisational level MEL frameworks and plans should be directed towards ensuring the measurement, review, and assessment of progress against all of the mandates that a science council has, and its related functional areas (see Box 4), to ensure sufficient data is collected and evidence available to aid strategic decision making and influence all areas of policy debate.

Box 4

Science council functions

- Disbursing funds for research and development (R&D)
- Building research capacity through appropriate scholarships and bursaries
- Setting and monitoring research agendas and priorities
- Advising on STI policies
- Managing bilateral and multilateral science and technology (S&T) agreements
- Assessing the communication, uptake and impact of publicly funded research

Source: compiled from Mouton et al (2015)

In addition to this – and usually a standard part of any organisation's strategic planning process – is the MEL of operational systems such as human resources, finance, procurement, spending across departments, etc. These are essential parts of science councils' evidence arsenal for effective intervention in policy debates, especially in key areas such as increasing resources allocated to the STI field.

Table 1: Overview of MEL activities in a sample of SGCI countries

Country	MEL framework/ plan	Theory of change/ log frame	RBM matrix	Where MEL conducted			Notes
				Research funds	Other functions	Strategy/ policy	
Botswana	Yes	Yes	Yes	Not clear	Not clear	Yes	• MEL of policy action focus • 'One MEL system' concept
Burkina Faso	No	No	No	Yes	Yes	Not clear	• MEL for one function (research funding)
Kenya	Not clear	No	No	Yes	Not clear	Yes	• MEL for one function (research funding)
Malawi	Yes	No	Yes	Yes	Not clear	Yes	• MEL of policy action focus
Mozambique	Yes	Yes	Yes	Yes	Yes	No	• Had dedicated support to develop MEL documents • Is not involved with strategy/ STI policy • Whole organisation approach
Namibia	No	No	Yes	Yes	Not clear	Yes	• MEL of policy action focus • RBM in STI policy implementation plan
Tanzania	Yes	Yes	Yes	Yes	Not clear	Yes	• RBM in COSTECH Strategic Plan and dedicated R&I monitoring framework
Zimbabwe	No	No	No	Yes	Not clear	Not clear	• Only received documents for research grants

Source: authors

2.2 Current status of MEL within Councils

We have received or retrieved from the internet the latest MEL plans and frameworks from Botswana, Burkina Faso, Kenya, Malawi, Mozambique, Namibia, Tanzania, and Zimbabwe. We found that:

- Most countries are conducting MEL of the STI policy
- Many countries are doing MEL of policy action
- Few have fully operational 'organisational level' MEL.

An overview of the findings is available in Table 1, and the specifics are discussed in more detail below.

2.2.1 MEL of policy at Council level

Five of the eight councils (Botswana, Kenya, Malawi, Namibia, and Tanzania) included in our in-depth review have conducted MEL of policy, i.e., they have led or been heavily engaged in the review of their STI policy document. We have also reviewed the status of STI policy reviews across the whole SGCI community. The results of this are presented in Table 2.

Some Councils are not actively engaged or leading this work because they do not have a mandate or functions related to STI policy. This is the case for Mozambique, for example. This does not mean that a review of STI policy is not ongoing but that the mandate for this work lies elsewhere.

Table 2: Review of MEL of policy activity

Country	STI policy review conducted	Date	Details
Botswana	Ongoing	2021-	Research Science, Technology, and Innovation Policy was revised last in 2011. Currently working with UNCTAD to conduct STI policy review.
Burkina Faso	Ongoing	2022	The latest document is the Politique sectorielle de recherche et d'innovation du Burkina Faso (2018-2027) (Sectoral Policy for Research and Innovation: 2018 to 2027) and National Policy for Scientific and Technological Research (2013–2025)
Cote D'Ivoire	No		No explicit STI policy
Ethiopia	Yes	2020-22	UNCTAD STI policy review was published in 2020, and the Council of Ministers approved a new STI policy in March 2022.
Ghana	Yes	2017	National-level updating of the STI policy led to a draft revised STI policy being sent to the Cabinet for approval in 2017. UNCTAD STI policy review took place in 2011 Ghana is part of the pilot initiative undertaking a STI4SDGs roadmap exercise.

Kenya	Yes	2019-	Kenya has reviewed the existing policy and drafted a revised STI policy to cover 2020-2030. Kenya is also adopting a STI4SDG roadmap.
Malawi	Ongoing	2021-	Malawi has benefited from the Go Spin review of 2014 and is now undertaking a full review and updating of its STI policy document.
Mozambique	Yes	2021-	Go-Spin report of 2021 with revised STI policy drafted in March 2022.
Namibia	Yes	2016-20	National Science, Technology, and Innovation Policy (NSTIP) 2020-2030. UNESCO supported some elements of the review. A review of the national innovation system was conducted in 2016.
Nigeria	Yes	2021	Policy review conducted and resulted in 2022 Revised National Policy on Science Technology and Innovation
Rwanda	Yes	2014-	National Science Technology and Innovation Policy (2006), revised in October 2014, has not yet been approved by Cabinet. It has also benefited from the 2015 Go Spin and the 2017 UNCTAD STIP reviews.
Senegal	Yes	2021-22	A new STI policy has been written and is currently being validated. No STI policy existed before these activities.
Tanzania	Ongoing		Efforts to update the 2010 National R&D Policy have appeared to stall. Draft Tanzania National Innovation Framework (NIF), which acknowledges the role of COSTECH in strengthening science and innovation developed in 2022.
Uganda	Yes	2020	Uganda undertook a UNCTAD STIP review in 2020. However, its STI policy has not been updated formally yet since 2009.
Zambia	Yes	2021-	Zambia undertook a UNCTAD STIP review published in 2022.
Zimbabwe	No		Zimbabwe's current STI policy is dated 2012, and it has not had a Go Spin review conducted since the same time (published in 2013).

2.2.2 MEL of policy action within Councils

As introduced above, MEL of policy action refers to reviewing and assessing the country's activities towards meeting its STI policy objectives. They are often guided by the KPIs or log frame developed as part of the implementation plan of the national STI policy. However, these in and of themselves may be insufficient, and additional review activities may be needed. This is particularly necessary where the KPIs and log frames or RBMs developed to aid STI policy implementation have been heavily focused on quantitative data, which often does not provide explanatory reasoning for the data received. Supplementary qualitative research is useful in these situations.

The starting point for policy action is the STI policy objectives. Box 5 for Namibia provides an

example of these, which recently updated its STI policy. Each of these high-level objectives has a series of sub-objectives containing key activities to be promoted during the policy implementation.

Box 5

STI policy objectives for Namibia

Objective 1: To improve the policy, legislative and regulatory environment;	**Strategy 1:** Align STI legislative and regulatory environment and frameworks to national, regional, and international development policies. **Strategy 2:** Build national capacity to enhance the use of scientific data for evidence-based policy development. **Strategy 3:** Improve standards of Technology Support Institutions.
Objective 2: To promote strategic partnerships and collaborations	**Strategy 1:** Engage with private sector and build public-private partnerships. **Strategy 2:** Strengthen national, regional, and international partnerships.
Objective 3: To improve scientific and technical competences in Science, Technology, Engineering and Mathematics (STEM)	**Strategy 1:** Strengthen human resources in STEM and increase full-time equivalent (FTE) researchers **Strategy 2:** Build capacity in the creation, management and use of intellectual property works.
Objective 4: To improve gender equality and mainstreaming in STEM	**Strategy 1:** Establish and improve programmes that support women's participation in STEM. **Strategy 2:** Support the role of women in innovation systems
Objective 5: To increase the utilization of scientific and technical knowledge for societal advancement	**Strategy 1:** Build strategic technology prospecting, fore-sighting, and procurement.
Objective 6: To promote a culture of science, technology, innovation, and entrepreneurship	**Strategy 1:** Promote public understanding of STI. **Strategy 2:** Promote technology audits by enterprises. **Strategy 3:** Establish national innovation promotion schemes **Strategy 4:** Strengthen small and medium scale enterprises.
Objective 7: To accelerate research in the areas of technological advancement in Technical, vocational education and training (TVET)	**Strategy 1:** Support technical and vocational research skills. **Strategy 2:** Promote research to bridge the gap between TVET and higher education.
Objective 8: To improve research and innovation infrastructure provision	**Strategy 1:** Develop and improve effectiveness of research and innovation infrastructure. **Strategy 2:** Develop and improve national platforms of research and innovation excellence.
Objective 9: To increase scientific productivity and technological output	**Strategy 1:** Increase research and innovation for manufacturing and industrial competitiveness.

Source: Republic of Namibia's Ministry of Higher Education, Technology, and Innovation, 2021

Namibia has developed an implementation plan that outlines how it wishes to measure progress against its national STI policy objectives. In this implementation plan, indicators are outlined to measure the progress against the sub-objectives per each objective. These, together with details of how they will collect this information, are provided in Box 6 in relation to two objectives as an example:

- Objective 1, Strategy 2: Build national capacity to enhance the use of scientific data for evidence-based policy development.
- Objective 9, Strategy 1: Increase research and innovation for manufacturing competitiveness.

Box 6

Measurement of progress against Objective 1 of Namibia's STI policy

STRATEGY	ACTIVITY	OUTPUT	KEY INDICATORS
Build national capacity to enhance the use of scientific data for evidence-based policy development	**3.** Develop strategic documents for the establishment of the Academy of Sciences	Strategic documents developed	% of strategic documents developed
	4. Increase national fellowship for training in science, technology, and innovation policy analysis	National fellowship for training in science, technology and innovation policy analysis developed	National fellowship developed
	5. 3. Conduct biennial national R&D and Innovation surveys	Biennial national R&D and Innovation surveys conducted	Biennial national R&D surveys reports completed
			Biennial national innovation surveys report completed

Measurement of progress against Objective 9 of Namibia's STI policy

STRATEGY	ACTIVITY	OUTPUT	KEY INDICATORS
Increase research and innovation for manufacturing and industrial competitiveness	**6.** Support to institutions that harness the use of technology in manufacturing	Incentive scheme developed	% of incentive
	7. Create twinning Twinning programmes to match SMEs with large companies with manufacturing capabilities	Twinning programmes developed and implemented	Number of twinning programmes developed and implemented

Source: Republic of Namibia's Ministry of Higher Education, Technology, and Innovation, 2021

You will note there that for Strategy 2 of Objective 1, the implementation plan mentions the R&D and Innovation survey of the country. Traditionally, these are the dominant forms of data collection mechanisms considered when discussing data needs concerning STI policy. However, as can be seen from Strategy 1 of Objective 9, the data required to evaluate the process of action within the STI policy comes in various forms. The data collected from R&D and innovation surveys only provide relevant data for a few of the STI policy objectives and not all of them. Therefore, a complete MEL framework concerning MEL of policy action must consider multiple data sources and collection techniques including, but not limited to:

1. R&D surveys
2. Research & Innovation surveys
3. Innovation surveys
4. HE sectors surveys
5. TVET surveys
6. Patents, trademarks, and other licensing data
7. Stakeholder actor mapping with partnership audit
8. Key informant interviews
9. Document review.

We will come back to this when discussing template frameworks and plans in Section 3.2.

2.7.1 Councils' organisational MEL

As noted in Table 1, four councils out of the eight for whom documents were available had M&E frameworks and plans at the time of the analysis. Of these, two (Botswana and Malawi) are strongly focused on the M&E of the STI landscape at the national level. The remaining two (Mozambique and Tanzania) are more focused on understanding the degree to which the organisation (FNI and COSTECH, respectively) are achieving their own internal goals based on the strategic plan, especially for Tanzania. It is the measurement of progress against internal goals and, by extension, the functions of the Councils that organisational MEL is concerned.

For example, in the case of FNI, their MEL strategy and plan document (of April 2017) highlights three objectives of FNI (to strengthen its capacity to develop a grants management and administration system, to support research and innovation, and to strengthen its M&E activities). It is against these three objectives that the MEL strategy and plan are orientated. An example of what this means in terms of the M&E being undertaken, Box 7 outlines this with respect to one part of its first objective to strengthen the capacity to develop a grants management and administration system (GMAS). It can be seen that what is being measured is not more traditional measures such as research impact (e.g., increase in expenditure on R&D) but also progress measures relating to activities undertaken (systems introduced, staff trained, etc.). A comprehensive MEL framework and plan will address the Council's functions, including measuring how the Council is managing its day-to-day activities.

What is interesting about the case of Botswana's MEL framework and plan is that, by taking a national-level approach, it also supports the promotion of a 'one-MEL' approach or the harmonisation of all STI-related bodies' MEL frameworks and plans. Such an approach is sensible as it will ease data collection and analysis efforts at the country level.

Box 7

Component of FNI's M&E strategy and plan

Objective 1: Strengthening support for the FNI Grant Management and Administration System

Output: More effective grant management system and practices (institutional and individual staff levels) at FNI

Activity	Output	Outcome	Impact
Design, develop and implement an online based grant management and administration system (GMAS)	Development of an online web-based grant management and administration system 1.2 Development of a Functional Website	1.1.1 Increase in number of grants funded awarded 1.1.2 Increase in research impact 1.2.1 Improved visibility/ accessibility/ opportunity/ relationships	Annual growth index of research and innovation production, Growth in gross domestic expenditure on research and innovation
Design and conduct of customised training courses and workshops for relevant FNI staff	FNI staff trained in grant management, IT, communication and finances	2.1.1 Increased competent of FNI staff	Reduction in socio-economic challenges directly because of FNI supported research and innovation

Source: adapted from FNI's Strategy for Monitoring, Evaluation and Learning, April 2017

2.7.2 Other MEL-related activities

While several of the Councils whose documents were reviewed had one form of MEL system or another, many of the other Councils in the SGCI have different ways in which some element of MEL is conducted. Several countries (Botswana, Kenya, Tanzania, Uganda, and Zimbabwe) have some form of national research priorities document that guides where research and STI efforts should be focused. Some of these are more recent and updated than others. Several countries also have these at a sectoral level, mainly regarding health research (e.g., Malawi, Ghana, Mozambique, and Namibia). Several of these research priority documents include a results-based framework or matrix against which to measure progress towards meeting the research priorities, e.g., Uganda.

In another example of an alternative approach to MEL, Kenya has introduced an institutional-level STI Strategy, which includes an M&E Framework for ministries, departments, and agencies. This is through attempts to mainstream STI activities across the government.

Cognizance of these and other MEL activities should be considered when reviewing and revising MEL frameworks and plans, and – where appropriate – incorporation or recognition of the MEL indicators and plans should be undertaken.

3. Using MEL data effectively

So far, we have discussed the different ways MEL activities are conducted in Councils. We hope this will help Councils recognise how MEL can, is, and needs to be used. Such MEL is important for several reasons, including:

a. Provides evidence on demand with no requirement for additional data collection when requested by line ministries or international development partners. This is especially possible when the reporting formats for funders and line ministries are considered when designing MEL activities.

b. Enables more efficient and effective management of Councils' activities because it is easier to see what is happening, what is working well, and less well in real-time.

c. Enables data to be pulled to make arguments for more funding and resources faster and with less effort.

However, to ensure Councils are effectively conducting MEL in one or more of the three types (i.e., MEL of policy, MEL of policy action, or organisational MEL), attention is required to examine how MEL plans and frameworks are developed and regularly revised and updated. Considering data collection requirements is also increasingly raising issues, especially digitalisation and automation of MEL systems.

Each of these will now be briefly introduced.

3.1 Revising/ deWveloping MEL plans and frameworks

The first step to enhance MEL's effectiveness is to review or develop MEL plans and frameworks. A template set is available in the Annex to assist Councils with this exercise. When revising or developing MEL plans and frameworks, the following questions need to be considered:

1. What documents already exist that need to be considered when designing or revising the MEL system of the Council? (Such documents include but are not limited to the national STI policy, national or sub-national and or sectoral research priorities, national development plans, existing reviews of the STI policy, framework, and system landscape)
2. What are the functions of the Council, and should the MEL framework and plan focus on one or all of these? What are the pros and cons of each focus? Does it mean that the MEL framework and plan needs to include elements of MEL of policy, MEL of policy action, organisational MEL, or a combination of these?
3. Who needs to be involved in reviewing or developing the MEL framework and plan? To what extent does this need to be an inclusive or even stakeholder-driven process? What does this mean for the timeline for document development?
4. What is the capacity needed for developing these documents? Is there any internal expertise, or will there be a need to bring in external support?
5. What is the budget for this activity going to be? Where will the funds come from to pay for this document review or development?

6. What is the timeframe for the review or development of the documents? What risks and mitigation strategies are required to keep the activity on time and within budget?

3.2 A minimum data set

In developing a MEL framework and plan, it is helpful to consider the minimum indicators needed to be included. A minimum set of indicators would help more effectively manage operations and ensure impact goals (scientific, economic, and social) are met. To do so, this minimum set of indicators must consider the activities or functions of the Council and the data needed by other STI stakeholders. Developing a minimum set of indicators across the whole SGCI would allow cross-comparison and benchmark (regional/ sub-regional data collection).

As noted above, developing a set of indicators for a minimum dataset requires reviewing existing systems, frameworks, and plans internally (within the Council) and externally (developed elsewhere, e.g., SGCI). It also requires considering overarching criteria (such as the SGCI MEL, national development plans; other funders' requirements; UNESCO STEM, and gender advancement indicators). A further dimension in deciding the minimum dataset are the resources and capabilities available to collect and analyse the data.

Annex 2 contains some suggestions for minimum indicators by Council function. Several indicators are helpful across multiple functions, i.e., input data on a number of calls or reviewers (but the data will be specific to the type of call, e.g., R&D vs. scholarships).

3.3 Digitalisation of MEL data collection and analysis

A final consideration is how MEL data is collected and analysed. Increasingly all data is being stored online. Several councils are developing MEL digital dashboards (e.g., Burkina Faso and Uganda) using Kobo Collect software. This is in addition to increasing numbers of Councils having online grants management systems that provide data collection and analysis.

Once data has been gathered, analysis takes the form of descriptive statistics when data gathered is quantitative in nature. Results should be presented in a simple format e.g. bivariate charts. Qualitative data is important to collect and analysis but a different analysis approach (e.g. thematic analysis).

One element of the Evi-Pol project is how to streamline data management's digitalisation (and automation) across all Council functions. The degree to which Councils can digitalise (and digitalise quickly and in an integrated way across all functions) and automate data management systems depends on time, money, and skills availability.

Some of the options for digitalisation of data collection and analysis include: Open Data Kit, Survey Monkey, Activity Info, Data Studio and Power BI.

4. Summary

This Guide to MEL has been designed to provide Councils within the SGCI with a typology to consider how different elements of MEL are undertaken and what this means for how MEL is undertaken. It has also provided – in the Annexes – several tools for Councils' MEL officers to use as they develop systems and procedures.

The key takeaways from this review of MEL at the Council level are three-fold:

- Think beyond MEL as only something that occurs in relation to monitoring grants or as the collection of STI indicators through R&D and innovation surveys or higher education statistics
- Focus MEL on all of the functions of the Council; this includes operational efficiency and effectiveness
- MEL is about learning and having evidence to (a) influence policy decisions and (b) make arguments for your government department/ unit to receive its fair share of resources.

5. Resources and references

ACTS (2021) Final Synthesis Report: Assessing STI Metrics in Africa. ACTS: Nairobi

Dammann, O., 2018. Data, information, evidence, and knowledge: a proposal for health informatics and data science. *Online journal of public health informatics*, *10*(3)

Diyamett, B. et al. (2019), *STI policy training for Africa: a basic module on reconciling theory, practice and policies.* Dar es Salaam: STIPRO.

Mouton, J., Gaillard, J., and van Lill, M. (2015) 'Functions of Science Granting Councils in Sub-Saharan Africa', in N. Cloete, P. Maassen, and T. Bailey (eds) (2015) *Knowledge Production and Contradictory Functions in African Higher Education*. Cape Town: African Minds

OECD (2016), "Evaluation and impact assessment of STI policies", in OECD Science, Technology and Innovation Outlook 2016, OECD Publishing, Paris. DOI: https://doi.org/10.1787/sti_in_outlook-2016-13-en

SGCI (2020) MEL Framework for Science, Technology and Innovation Grant Awarding Councils in Africa

UNCTAD (2019) A framework for STI policy reviews. UNCTAD: Geneva

Wilson-Grau, R. and Britt, H., (2012). *Outcome harvesting*. Cairo: Ford Foundation

Useful websites

www.betterevaluation.org

https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm

https://www.oecd.org/sti/inno/oecd-reviews-of-innovation-policy.htm

www.theoryofchange.org

6. Annexes

Annex 1: MEL templates

- MEL assessment tool template
- MEL plan template
- MEL framework template

Annex 2: Minimum indicator dataset by function

6.1 Annex 1: MEL templates

6.1.1 MEL capacity assessment tool template

Science Grant Councils (SGC) in SSA

Monitoring, Evaluation, and Learning (MEL) Capacity Assessment Tool (CAT) and Capacity Building Plan (CBP)

Instructions

Introduction

This capacity assessment methodology described in this tool is based on a self-assessment approach where SGCs will be required to reflect on their strengths, weaknesses, opportunities, and threats on MEL and document the same. To bring out objectivity into the process, an external facilitator should be engaged to facilitate the sessions. This tool should not be interpreted as an audit tool but rather as a tool that will help SGCs understand better their strengths, weaknesses, opportunities, and threats in relation to MEL. The end result is to ensure that SGCs have MEL capacity building plans that will lead them towards having an effective and efficient MEL system to help them monitor and evaluate progress against STIs indicators.

All the relevant staffs (including management) are advised to participate in the self-assessment. It is estimated that the assessment might take between 1-2 days depending on the discussions and the facilitator. It is important that all the discussions are well documented.

Before the assessment day, the facilitator must ensure that the following items are in place; laptop, projector, flip chart, sticky notes, pens, and a note taker.

This document is divided into three complementary sections. Section A - MEL Minimum Operating Standards (MOS), Section B – Capacity Assessment Tool (CAT) and Section C- Capacity Building Plan (CBP). The nine steps below will guide you on how to complete the various tools.

Steps

Introduction – Setting the Pace

Step1: The facilitator might introduce the session by taking the participants through the importance of MEL in the organization/department/programme. Other things that can also be discussed at this stage to set the pace include the importance of STIs.

Step2: Through plenary, participants will map at least 10 MEL features that need to be in place for a fully functional MEL unit without focusing on their organization. The discussion can also include MEL features that need to be in place to Monitor and Report against the STI indicators.

Section A – Minimum Operating Standards (MOS)

Step3: The facilitator will be required to project the 17 Minimum Operating Standards (MOS) in Section A of this document. Participants will then be required to link the features mapped in step 2 above to the 17 MOS in Section A (i.e., find a home of what was discussed in step 2 above). After the linking, the facilitator will guide the team to select (by ticking) the MOS that is currently present in their organization/department/programme.

Step4: It is possible that the participants may have mentioned MEL features (Refer to Step 3) that they currently don't have in their organization. At this stage, the facilitator will be required to verify/validate this information – this might include requesting to see, for example, the ToC, Monitoring Framework, etc. The aim here is to document evidence that these features truly exist.

Section B – Capacity Assessment Tool (CAT)

Step5: The facilitator must guide the participants in selecting a minimum of 10 MOS from section A and populate the same in Section B. Note that it is okay to include MOS and those not selected in Section A. The choice of what to select should be guided by the participant's interpretation of what is a priority to them as an organization to set/improve their MEL system effectively. The discussion or rationale behind the selection should be documented.

Step6: For the 10 MOS selected, the participants will be required to discuss their Strengths, Weaknesses, Opportunities, and Threats (SWOT) based on their organization position. The facilitator will be needed to probe for examples. All the discussion and agreed narrative should be documented in the third column of the table – this must be well documented (i.e., the notes should be as detailed as possible).

Step7: After the SWOT discussion, the participants will be required to score each MOS based on the SWOT analysis. Participants should be guided to be more objective in the scoring. The rating scale should apply: 1= Not observed or absent; 2=Needs developing; 3= Average; 4=Effective; 5= Excellent).

Section C – Capacity Building Plan (CBP)

Step8: After the scoring, the participants will be required to select (by ticking) MOS that they would like to see enhanced capacity. This could be based on (a) the scoring – not a must, and (b) the SWOT analysis – highly advised. It is advised to prioritize a maximum of 5 MOS. It is important to document the discussion/rationale behind each choice made.

Section C:

Step9: Based on the selected MOS in Section B, the participants will be required to transfer each MOS in the Capacity Building Plan and complete the various columns therein.

Section A: MEL Minimum Operating Standards (MOS)

Minimum Operating Standards (MOS)	Tick
A. INFRASTRUCTURE	
MOS1: There exists a designated staff for M&E	
MOS2: M&E focal person has been trained on M&E basics/fundamentals	
MOS3: The organization has allocated a percentage of its budget toward MEL	
MOS4: An internal MEL guideline (Manual/Policy/Strategy) is in place	
MOS5: Top management demonstrates buy-in to MEL and sees its value in the organization	
MOS6: There exists an online MEL/grant management system	
MOS7: There exists an IT officer who can manage a MEL system	
B. MONITORING	
MOS8: An organization Theory of Change (ToC) is in place	
MOS9: ToC is evidence-based (I.e., was informed by a PEA[1], Research, etc.?)	
MOS10: Staff were consulted in the design of the ToC (Gave input)	
MOS11: Monitoring/Results framework in place (Better if linked to the ToC)	
MOS12: The monitoring framework has SMART indicators at all levels	
MOS13: Staffs report to have a good understanding of the Indicators	
MOS14: There exist monitoring tools for collecting data against the Indicators	
E. EVALUATION	
MOS15: There exists an Evaluation Plan and Framework	
MOS16: The design of the Evaluation Plan and Framework was participatory	
MOS17: A plan to review and revise Evaluation Questions on a routine basis is in place	
D. LEARNING	
MOS18: There exist a reflection and learning plan (meetings, workshops, etc.) for staff	
MOS19: The organization actively relies on evidence from MEL to make strategic decisions	

1 Political Economy Analyses

Section B: Capacity Assessment Tool (CAT)

Note: Rating should be based on self-reflection (Rating scale: 1= Not observed or absent; 2=Needs developing; 3= Average; 4=Effective; 5= Excellent)				
Minimum Operating Standards (MOS)	**Unit**	**Explain in detail in the Section the SWOT**	**SCORES**	**Tick**
MOS (Insert number): <Insert the specific MOS here>1	Strength	Available staff		
	Weaknesses	Non-specialized staff		
	Opportunities	Young and voluntary staff		
	Threats	Insecurity		
MOS (Insert number):2	Strength	Knowledge of fundamental principles		
	Weaknesses	Lack of continuing education		
	Opportunities			
	Threats			
Total (X/50)			**<Value>**	

Section C: Capacity Building Plan (CBP)

Capacity gap description: State the critical capacity gap. This should be informed by the specific MOS in Section B.	**Objective:** The positive thing you would like to see as a result of enhanced capacity.	**Progress Markers:** How will you know the objective has been achieved? e.g., When Monitoring Framework is in place	**Activities:** What will you do to bring about the change you want to see?	Staff level of effort required for the activities		By when will this activity be completed - date?	Is funding required?	
				Name of staff	# days		Cost ($)	Source of funding

6.1.2 MEL Plan Template

Title page

This should clearly state that this is the Council MEL plan, along with details of the author and the date on which it was completed. A table can also be included that provides details of any updates or changes made (or this can be included in the front matter).

Contents page

This will give an overview of the main contents of the plan. It can also include a list of tables and figures if useful/ needed.

Abbreviations page [optional]

This will provide a list of the document's abbreviations and complete details.

Introduction

This Section should outline the aims and objectives of the MEL plan. In so doing, it is often customary to include a theory of change here. This can be a narrative theory of change, or it can be in the form of the overarching logical framework table. Below we provide a simple version of this that can be used. Indicators are added in each of the cells below.
Theory of change/ log frame

	Inputs	Activities	Outputs	Outcomes	Impacts
Function 1					
FUNCTION …					
Function …					
Assumptions					

Monitoring Plan

This Section outlines how and when monitoring will occur to collect data against the indicators outlined in your theory of change or log frame. This can take the form of a narrative description or a table. The Key is to clarify how regularly monitoring will occur against each function (monthly, quarterly, yearly – not all functions or sub-functions require the same frequency of reporting) and how monitoring will take place (remotely, face-to-face, routine surveys or reporting, etc.).

Evaluation Plan

This Section outlines whether there will be a mid-term evaluation of progress against the theory of change or just an end-line evaluation. It is recommended that an evaluation is conducted every five years. These evaluations are usually aligned to fit into broader strategic planning activities so that the findings can be used to assist in decision-making. This Section should also clarify whether

evaluations will be conducted internally, i.e., by Council staff or external consultants will be hired.

Learning Plan

This Section provides details of how the lessons learnt from reviewing the findings from monitoring and evaluation will be shared within the Council and with external stakeholders. It will also outline whether there are other avenues for sharing lessons and knowledge outside of formal monitoring and evaluation activities.

Data management

This Section will provide details of how the data needed for monitoring and evaluation will be collected and analyzed. This will therefore list the data collection and analysis mechanisms. It will outline risks and mitigation strategies to ensure data collection and analysis. Given the increasing recognition of privacy and security issues, it will also have a sub-section that discusses how data will be stored, what data will be stored, and for how long. Details of who has access to the data and how it will be accessed should also be included.

Roles and Responsibilities

This Section will – usually in tabular format – provide an overview of who will be responsible for monitoring, evaluation, and learning activities. This will make clear, for example, if the responsibility of data collection of grants data or communications data is the role of Council staff or researchers funded by the Council or both.

Stakeholder engagement with MEL

MEL is only effective if it is conducted in collaboration with those being monitored and evaluated and those who will use the resulting reports and findings. Therefore, this Section outlines any co-design or co-production of MEL activities that will take place. It will also include details of the MEL findings dissemination strategy.

Resources

Knowing how the MEL activities will be resourced is essential, notably what funding is available and where it will come from is essential. A simple table is sufficient here.

Schedule of activities

This Section can be joined with that on roles and responsibilities, or it can be free-standing. Wherever it is placed, this Section outlines the monitoring, evaluation and learning activities timetable.

Annex 1: Indicators overview

This Annex is essential and provides a detailed overview of each of the indicators provided in the

theory of change/ log frame and provides the following information as a minimum:

1. Definition of the indicator
2. Source of the data for the indicator
3. Frequency of collection
4. Unit of analysis
5. Baseline figure for the indicator
6. Target figure after the time frame of the MEL Plan.

Annex 2: Data collection instruments [optional]

For those who would like to produce a thorough MEL plan, additional annexes are included that outline the data collection instruments to collect data during monitoring, evaluation, and learning activities.

6.2 Annex 2: Minimum indicator

6.2.1 MEL Framework template

A MEL framework is essentially a tabular overview of the data to be collected, how it is to be collected, why it is being collected, and the baseline and targets. It is a summary document of the MEL plan – a combination of the change/ log frame theory and the indicators tables. As such, for smaller Councils, a MEL framework will be sufficient, i.e., a full MEL plan is not always necessary.

	Outputs	Indicators (with source)	Outcomes	Indicators (with source)	Impacts	Indicators (with source)	Baseline	Target by year	Cumulative target
Function 1 Sub-function 1.1 Sub-function 1.2 Sub-Function 1.3 Sub-Function...									
Function … Sub-function 2.1 Sub-function 2.2 Sub-Function 2.3 Sub-Function...									
Assumptions									

6.2.2 Function 1: Funds disbursement

Inputs	Activities	Outputs	Outcomes	Impacts
Funds allocated (by funder, sector)	# grants allocated (by sector/ type) [# grants contracted]	# publications (by sector)	% increase research capacity of HE (gender, sector)	Increase in GERD
# calls launched	Funds disbursed (% & total $, sector, type)	# patents (by sector)	% increase research capacity other institutions (gender, sector)	Tangible examples of positive impact on social and economic development from STI investments
# proposals received (by sector/ type)	# female PIs awarded grants	# MSc & PhD students trained (by gender, location, sector)	% increase in partnerships and collaborations	
# advisory/pre-call sessions held	# research infrastructure capacitated	# innovations commercialised	Diversification and increase in funding sources	
# reviewers in the database	# reviewers utilised (gender, location, sector)	# training/ capacity building activities held	% increase standing of the country in research rankings	
# grant managers (by sector, gender)		# partnerships created (by org type)	The proportion of funding matched to NDPs and SDGs	

6.2.3 Function 2: Building research capacity through appropriate scholarships and bursaries

Inputs	Activities	Outputs	Outcomes	Impacts
Funds allocated (by funder, sector)	# scholarships and bursaries allocated (by sector/ type)	# publications (by sector)	% increase research capacity of HE (gender, sector)	% increase standing of the country in research rankings
# calls launched	Funds disbursed (% & total $, sector, type)	# patents (by sector)	% increase research capacity other institutions (gender, sector)	
# proposals received (by sector/ type)	# female & disabled students awarded scholarships and bursaries	# students trained (by gender, location, sector, stage of career)	% increase in partnerships and collaborations	
# advisory/pre-call sessions held	# reviewers utilised (gender, location, sector)	# innovations commercialised		
# reviewers in the database		# training/ capacity building activities held		
Status of research capacity in country (i.e., # researchers in-country)				

6.2.4 Function 3: Setting and monitoring research agendas and priorities

Inputs	Activities	Outputs	Outcomes	Impacts
Status of research in the country (i.e., # publications, patents)	# research agenda/priority-setting reviews conducted	# research agenda/ priority documents published	The proportion of funding matched to NDPs and SDGs	Tangible examples of positive impact on social and economic development from STI investments
Status of research capacity in the country (i.e., # researchers by sector/ specialty)	$ funds received for calls to address research priorities	# calls, % funds, and # grants allocated to address research agenda priority areas		
National Development Plan (NDP) Goals, Sustainable Development Goals (SDGs), and other relevant goals				

6.2.5 Function 4: Advising on STI policies

Inputs	Activities	Outputs	Outcomes	Impacts
# staff in the policy unit	# STI policy reviews conducted	# STI policy reviews published	STI activities conducted across all economic sectors	Tangible examples of positive impact on social and economic development from STI investments
Availability of STI policy consultants	# collaborative workshops across government depts	# stakeholders sensitized to STI policy requirements	STI capacities strengthened	% increase standing of the country in research rankings
Funds for STI policy review	# stakeholders engaged	# policy briefs published	Functioning STI ecosystem	

6.2.6 Function 5: Managing bilateral and multilateral science and technology (S&T) agreements

Inputs	Activities	Outputs	Outcomes	Impacts
Status of research capacity	# collaborative research calls conducted	% increase in research collaborations	% increase in partnerships and collaborations	% increase standing of the country in research rankings
Status of Council capacity	# exchange visits across countries (by sector)	# publications involving >1 country team	Diversification and increase in funding sources	Regional-level cooperation levels enhanced
Funds for collaboration (including research collaborative research grants)	# collaborative research agreements signed	# innovations commercialised		

6.2.7 Function 6: Assessing the communication, uptake, and impact of publicly funded research

Inputs	Activities	Outputs	Outcomes	Impacts
# staff trained in communications	# impact assessments conducted of research funded	# impact assessments published	Research sites experience positive behaviour change/ lives saved	Tangible examples of positive impact on social and economic development from STI investments
Media, communications facilities	# press releases and other media communications undertaken	# project findings reported in the press and/ or cited in other papers	Policies revised due to research findings	
# researchers trained in research communication	# training workshops on research communications supported			