

Project Monitoring PMG333

Prepared by

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**Lecture 06: Methodologies for data collection
and analysis for monitoring and evaluation**



Lecture

06

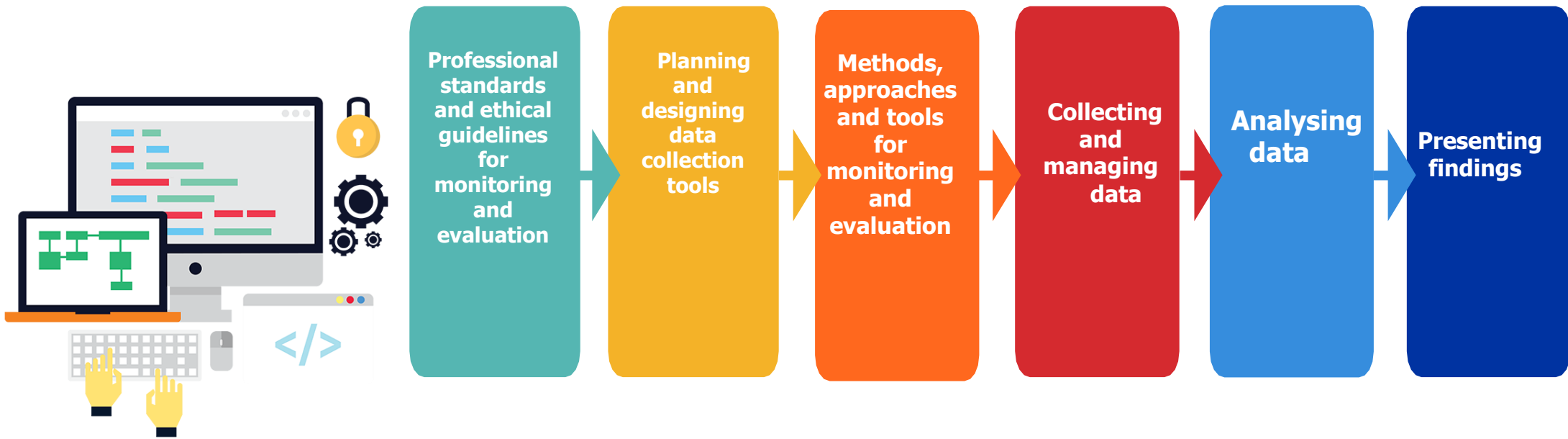
General Introduction

**« And what is the use of
executing projects, since
the project is in itself
sufficient enjoyment? »
Charles Baudelaire. »**

Charles Baudelaire

Session 4: Methodologies for data collection and analysis for monitoring and evaluation

✓ An overview of chapter 4 >>>



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1. Professional standards and ethical guidelines

- ✓ During the different stages of monitoring or evaluation, including for the collection and use of data, M&E practitioners are required to adopt ethical behaviors that prevent them from being influenced by internal and external pressures that may try to change the findings before they are released or to use them in an inappropriate way



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Ethical behavior



Ethics are a set of values and beliefs that are based on a person's view of what is right, wrong, good and bad and that influence the decisions people make.

They can be dictated by the organization and also by laws in the country in which the practitioners work and what people consider to be ethical in that context.

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Evaluation and politics

The gathered data provide an important source of information to decision makers about the intervention being monitored and/or evaluated.

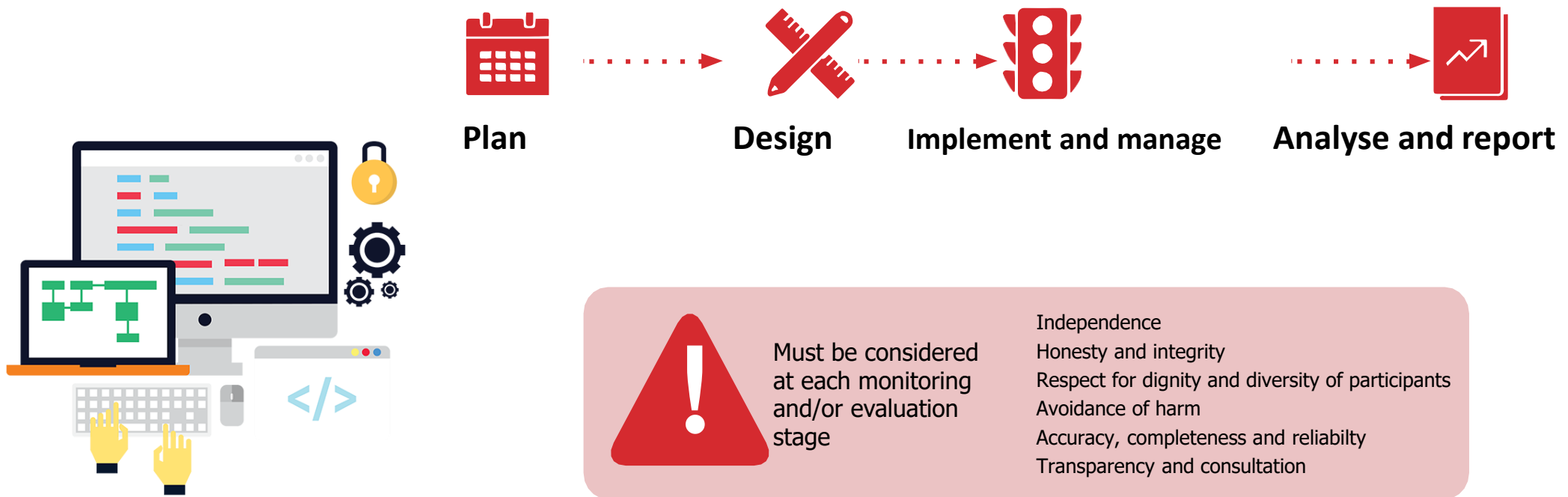
While positive evaluations can help secure more funds, expand a pilot project or enhance reputations, the identification of serious problems can lead to difficult situations where the credibility of the work done is at stake.

Understanding and managing political situations and influence is crucial for maintaining the integrity of the monitoring and evaluation work and well defined and robust methodologies for the data collection and analysis play a critical role.



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Monitoring and evaluation ethical principles

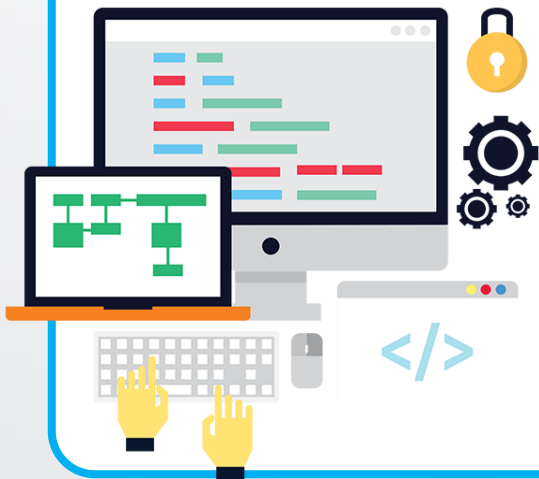


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2. Planning and designing data collection tools

Rigorous planning and designing for data collection can improve the quality of the approach and methods of data collection and, therefore, the quality of collected data.

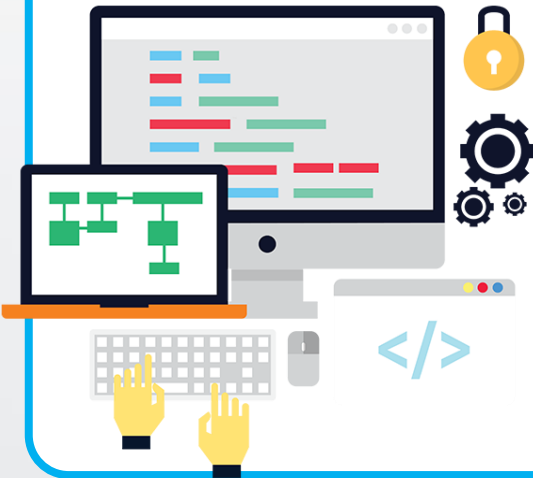
It is imperative to identify the approach intended for use to monitor or evaluate an intervention, and then to establish a data collection plan. Selecting an appropriate approach will also allow a relevant assessment of the monitoring or evaluation questions guiding any review, taking into account the specific context, existing constraints, access, timing, budget and availability of data.



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Data governance

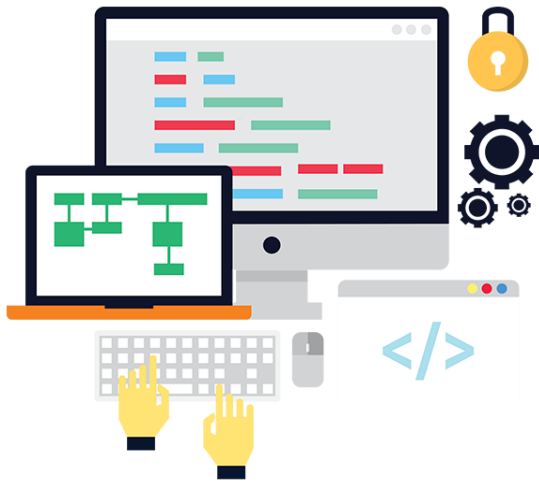
- represents the framework used to manage the organizational structures, policies, fundamentals and quality that ensures accurate and risk-free migration data and information.
- It establishes standards, accountability and responsibilities and ensures that migration data and information use are of maximum value, while managing the cost and quality of handling the information.
- Data governance enforces the consistent and integrated of all members of the project.



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How is it relevant to work?

- Data governance allows to view data as an asset in every intervention and, most importantly, it is the foundation upon which all initiatives can rest.
- It is important to keep in mind the migration data life cycle throughout the whole project cycle.
- This includes the planning and designing, capturing and developing, organizing, storing and protecting, using, monitoring and reviewing, and eventually improving, the data or disposing of it.



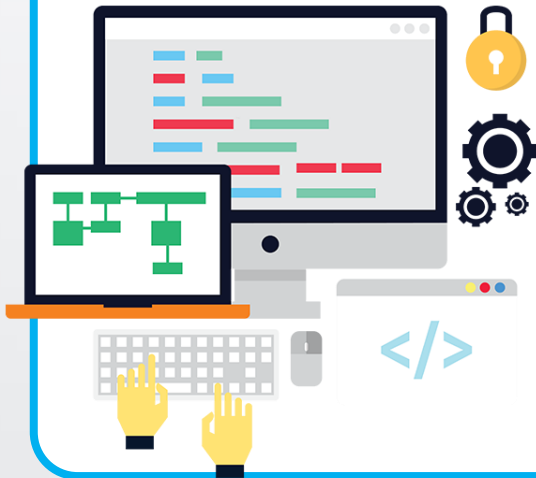
Key concepts to look out for:

- Data steward
- Roles and responsibilities
 - Data quality
- Data classification for security and privacy
- Data processing, including collection and use

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Planning for data collection

- When planning for data collection, basic considerations ensure that the data to be collected and analysed is valid and reliable: purpose for data collection, methodology for data collection, resources for data collection and timing for data collection.
- Qualitative, quantitative or mixed methods approach to collect data can be considered in that respect.



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Key considerations when planning for data collection



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Purpose for data collection

- Identifying the purpose of data collection aims to address different information needs, and information needs of monitoring may also differ from those of evaluation.

Some questions to ask:

- ✓ Is the data collected for the purpose of monitoring or evaluation?
- ✓ What are the main information needs?
- ✓ What are the objectives, outcomes, outputs and activities being monitored or evaluated?
- ✓ What are the expected results (intermediate and long term)?
- ✓ Which stakeholder's information needs will the data address?



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Methods for data collection

- Several aspects need to be considered, such as identifying the source of the data, the frequency of data collection, knowing how data will be measured, by whom and how many people will collect data and selecting the appropriate methodology in order to design the right data collection tool/s.

- Some questions to ask:

- What are the criteria and questions to be addressed in the data collection tools?
 - What type of data is needed to answer the information needs?
 - Are multiple data sources required/used to answer the information needs?
 - What types of data already exist?
 - What data is missing?



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Resources for data collection

- Resources will be enabling the implementation of choices.

Some questions to ask:

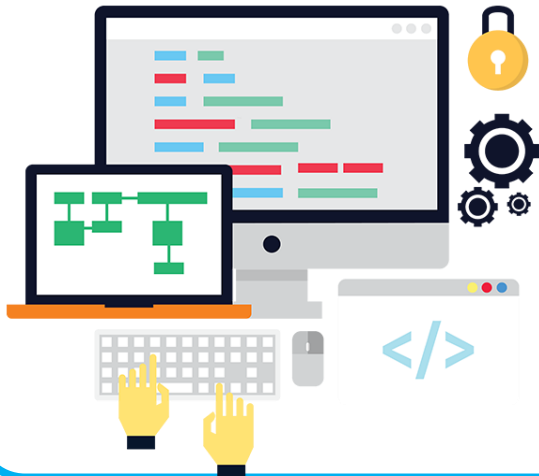
- Are there enough resources, such as staff and budget, to collect the data on a frequent basis?
- Who is responsible for collecting the data? Will external enumerators need to be hired?
- How will enumerators get to the data collection sites? What are the related costs?
 - Are additional costs for data collection and analysis required?



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Timing for data collection

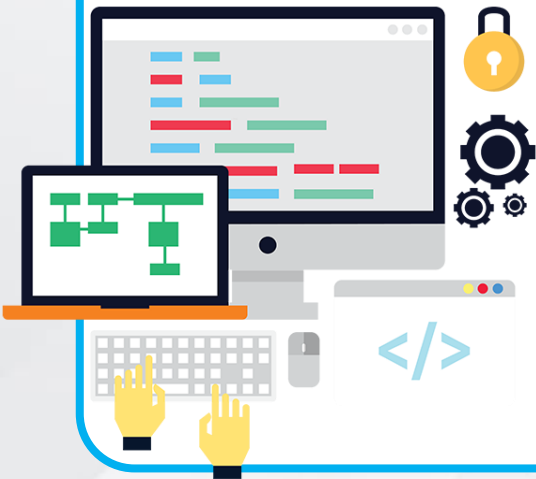
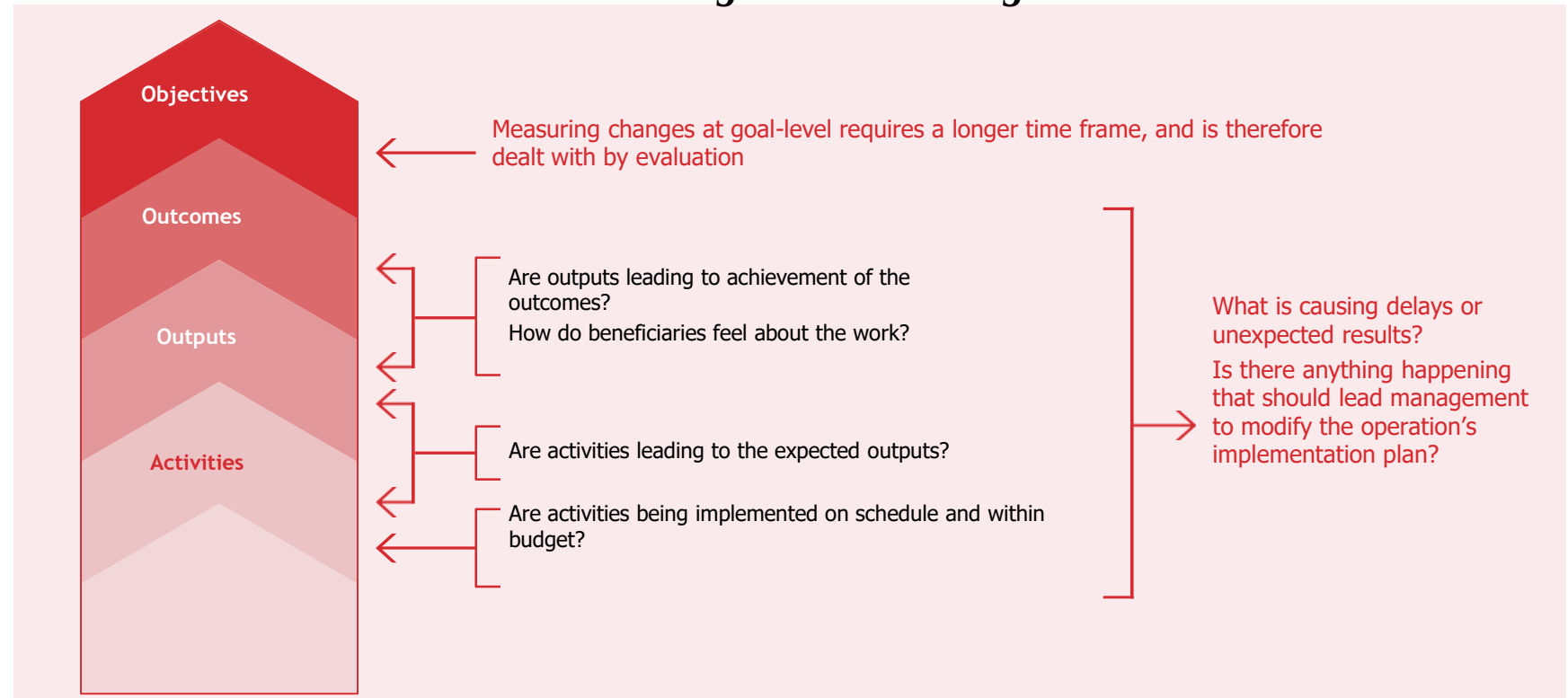
- Timing may influence the availability of resources, as well as the relevance of data (avoid outdating of data).



- Some questions to ask:
 - At which stage of the implementation cycle will data be collected?
 - How long is data collection expected to last?
 - Will data be collected in a timely manner for it to reflect a current status quo?

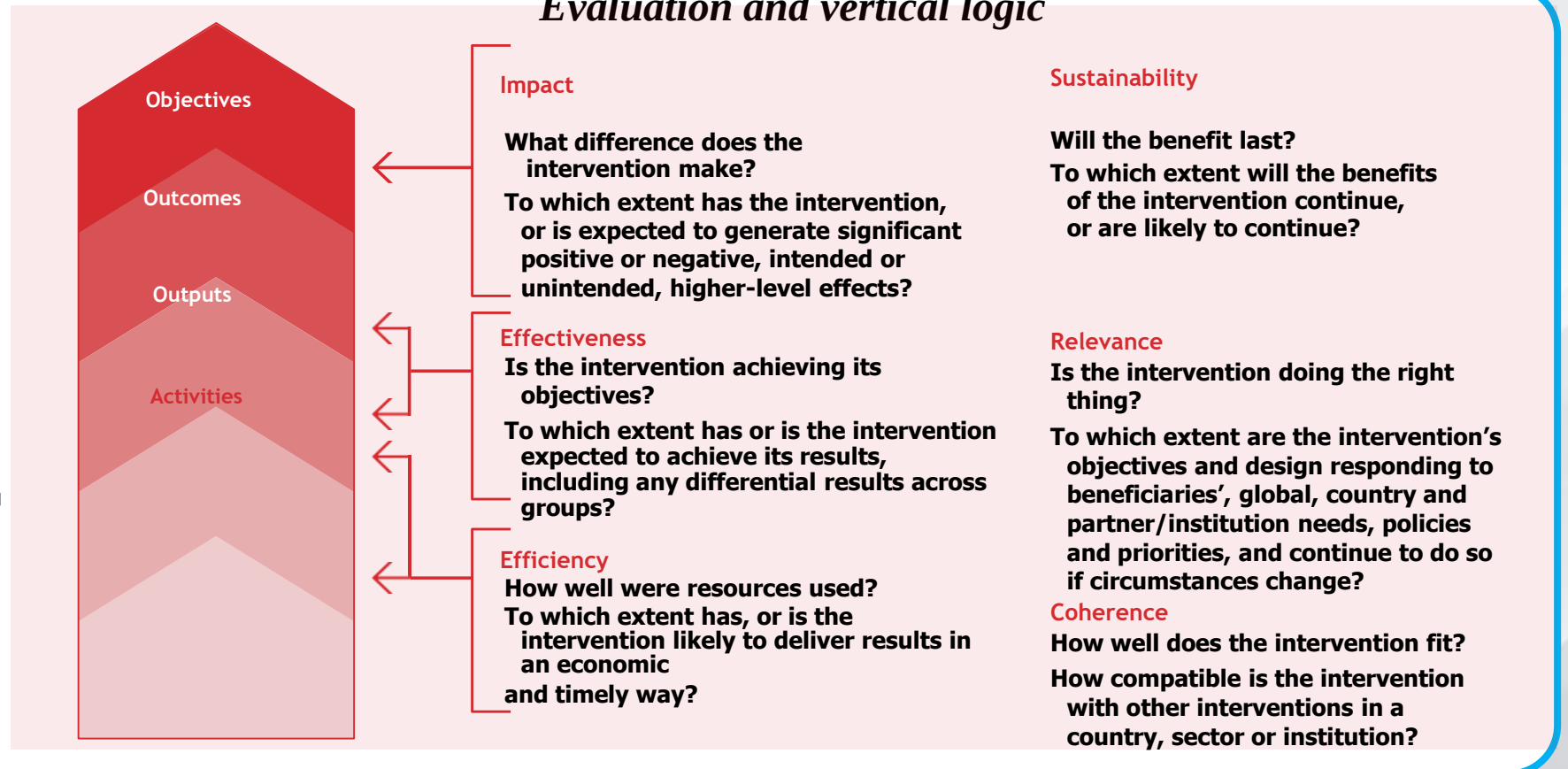
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Monitoring and vertical logic



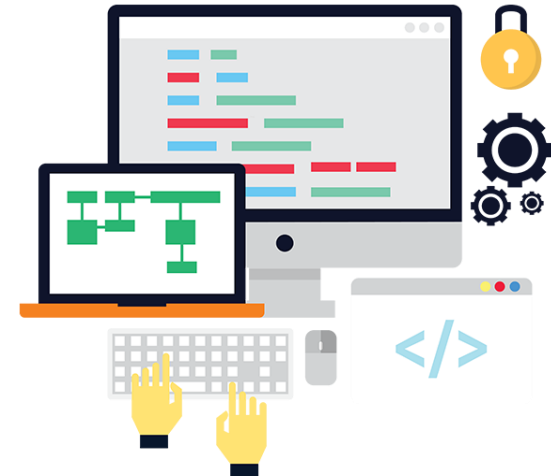
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Evaluation and vertical logic



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Sources of data



- **data sources** as identifying where and how the information will be gathered for the purpose of measuring the specified indicators.
- In general, there are two sources of data that can be drawn upon for monitoring and/or evaluation purposes:
- **Primary data**, which is the data that M&E practitioners collect themselves using various instruments, such as key informant interviews, surveys, focus group discussions and observations.
- **Secondary data**, which is data obtained from other pre-existing sources, such as a country census or survey data from partners, donors or government.

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Desk review

- When choosing sources of data, it is helpful to start with a desk review to better assess what type of data to use. For monitoring, this corresponds to the information included under the column “Data source and collection method” of the IOM Results Matrix and Results Monitoring Framework.
- For evaluation, the type of data will be clarified in the evaluation ToR, inception report and/or evaluation matrix and can also include data derived from monitoring.

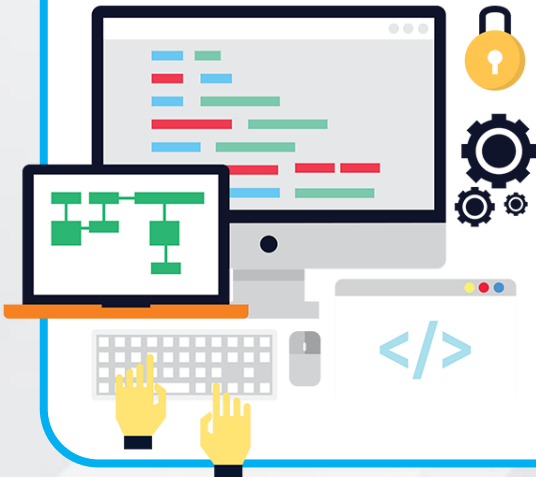
A desk review usually focuses on analyzing existing relevant primary and secondary data sources and can be either structured or unstructured. Structured desk reviews use a formal structure for document analysis, whereas unstructured reviews are background reading. For detailed guidance on conducting a desk review



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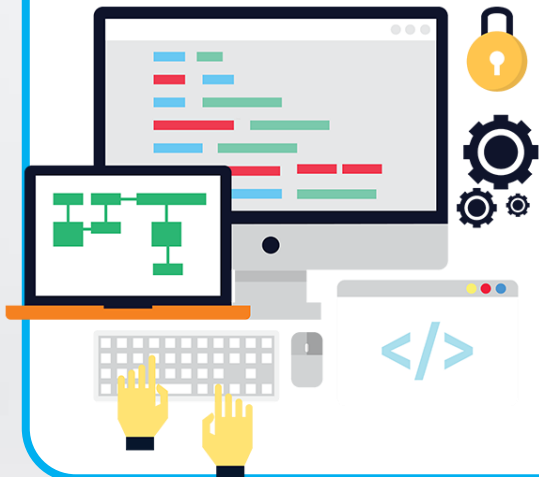
Type of measurement

- When planning for data collection and analysis, knowing the type of measurement, that is how data will be measured, may influence the decision to choose the appropriate methodology. This is of particular importance to inform the design of data collection tools such as surveys.
- Measures of indicators identified in a Results Matrix or Evaluation Matrix can include categorical (qualitative) and/or numerical (quantitative) variables. A variable is any characteristic or attribute that differs among and can be measured for each unit in a sample or population



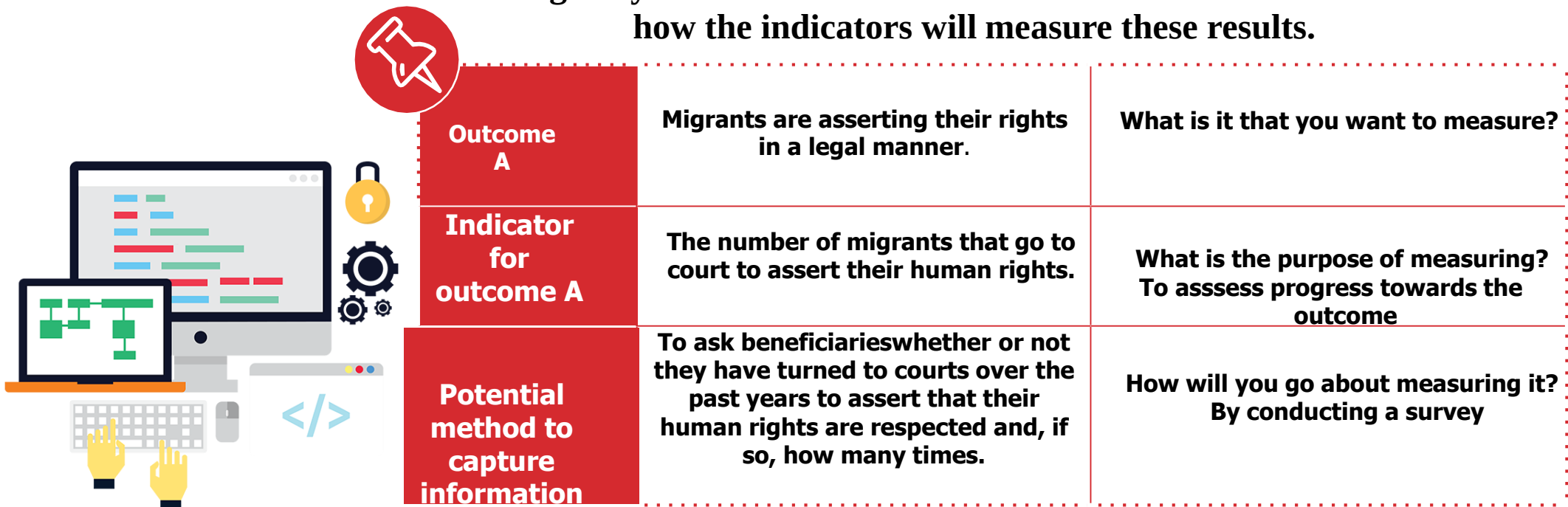
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- **Categorical variables** represent types of qualitative data that can be divided into groups or categories.
- Such groups may consist of alphabetic (such as gender, hair colour or religion) or numeric labels (such as female = 1, male = 0), or binary labels (such as yes or no) that do not contain information beyond the frequency counts related to group membership.
- **Numerical variables** (also known as quantitative variables) are used to measure objective things that can be expressed in numeric terms such as absolute figures, such as the number of persons trained, disaggregated by sex, a percentage, a rate or a ratio.



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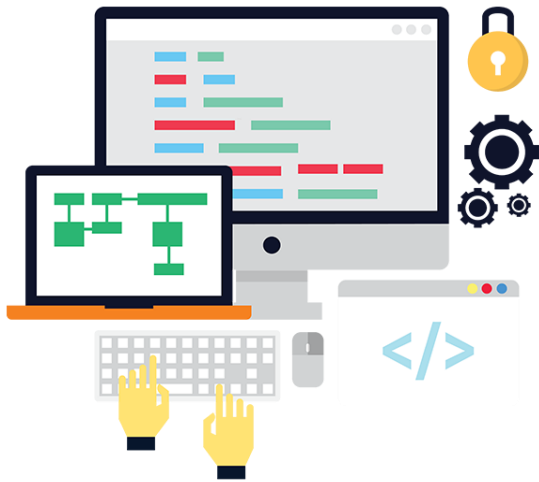
When designing indicators, the most important tasks are to logically link these to the intervention results and determine how the indicators will measure these results.



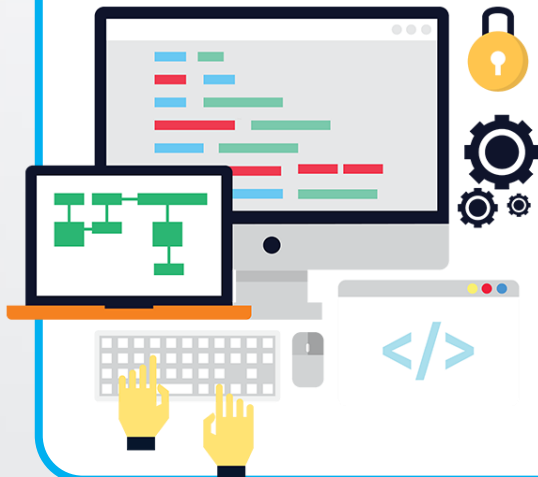
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. Checklist for measuring quality

Relevancy	Does it measure what really matters as opposed to what is easiest to measure?
Credibility	Will it provide credible information about the actual situation?
Validity	Does the content of the measure look as if it measures what it is supposed to measure? Will the measure adequately capture what you intend to measure?
Reliability	if data on the measure are collected in the same way from the same source using the same decision rules every time, will the same results be obtained?
Cost-effectiveness	What is the cost associated with collecting and analysing the data? Is the measure cost-effective?



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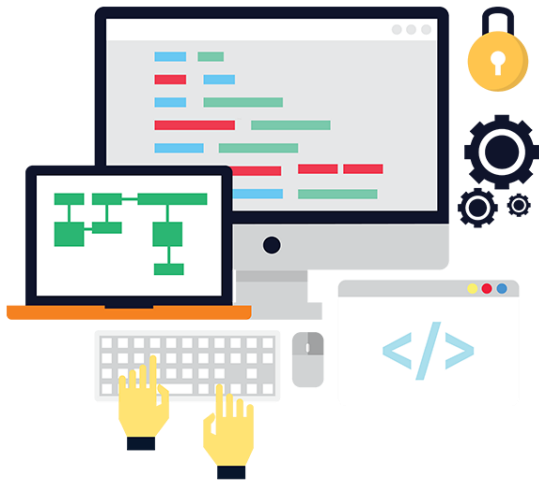


- The values that a variable takes form a measurement scale, which is used to **categorize and/or quantify indicators**.
- The levels of measurement used will determine the kind of data analysis techniques that can or cannot be used.
- The most important task of any indicator **is to ensure the best possible allocation of the characteristics being measured to the measurement scale**.
- This segregation of the characteristics “and their measurable statistical dispersion (variance) on the scale are the main insights gained because of the indicator (the variables)”.

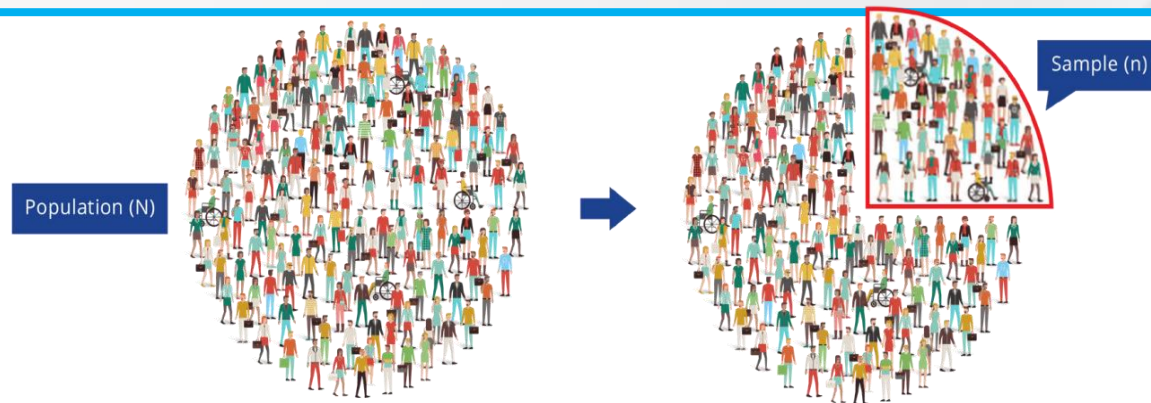
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Sampling

- Sampling is the process of selecting units from a population (that is, a sample) to describe or make inferences about that population (that is, estimate what the population is like based on the sample results).
- When planning for data collection and thinking of the type of data that will be collected, **it is important to assess the target audience from which the data will be collected.**
- A crucial consideration that may **influence decision-making** is to determine the sample size and sampling strategy to select a representative sample of respondents, as this has budgetary implications.
- While at times it may be feasible to include the entire population in the data collection process, at other times, this may not be necessary nor feasible due to time, resource and context-specific constraints, so a sample is selected.



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- All members of a specified group
- While collecting data, you are trying to find out information on that population

Questions to ask when sampling

- Who will be the respondents for data collection?
- How many people will data be collected from?
- Why is it better to collect data from group A rather than group B?
- How many responses will need to be collected to make the findings reliable,

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Random sampling



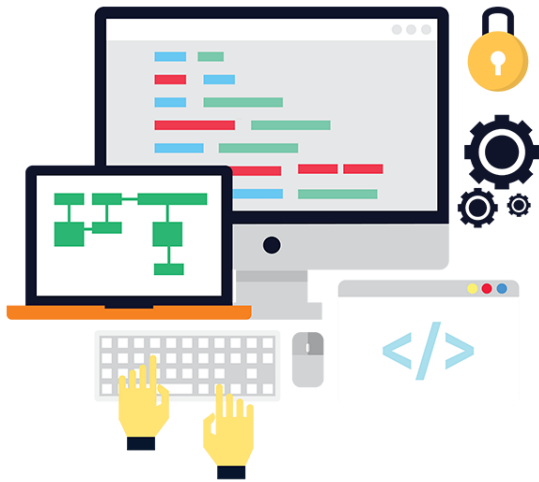
- ❖ **Random sampling** is an approach to sampling used when a large number of respondents is required and where the sample results are used to generalize about an entire target population. In other words, to ensure that the sample really represents the larger target population and that not only reflecting the views of a very small group within the sample, representative individuals are randomly chosen. Random sampling is an effective method to avoid sampling bias.
- ❖ True random sampling requires a **sampling frame**, which is a list of the whole target population from which the sample can be selected. This is often difficult to apply. As a result, other random sampling techniques exist that do not require a full sampling frame (systematic, stratified and clustered random sampling).

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Types of random sampling	Definition	Purpose	Advantages	Disadvantages
Simple Random sampling	Simple random sampling is a technique where each member of the population has an equal chance of being selected as subject.	When the target population is small, homogeneous and easily accessible	High degree of representativeness of the target population	• Time consuming and expensive • Requires a sampling frame • Results can vary considerably if target population is very heterogeneous • Difficult to do for large/dispersed populations • Small subpopulations of interest may not be present in the sample in sufficient numbers
Systematic random sampling	Systematic random sampling is a technique that randomly selects a number near the beginning of the sampling frame list, skips several numbers, and selects another number, skips several more numbers, and selects the next name, and so on. The number of names skipped at each stage depends on the desired sample size.			



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Cluster random sampling	Stratified random sampling divides the sampling frame in two or more strata (subpopulations) according to meaningful characteristics, such as type of migrant or gender from which participants are then randomly selected.	When the population is heterogeneous and contains several different subpopulations, some of which are of interest for the monitoring/evaluation exercise	High degree of representativeness of the subpopulations in the target population	- Time consuming and expensive - More complex than simple and systematic random sampling - Strata must be carefully defined
Cluster random sampling	Cluster random sampling divides the population into many clusters (such as neighbourhoods in a city) and then takes a simple random sample of the clusters. The units in each cluster constitute the sample.	When both the target population and the desired sample size are large	- Easy and convenient - Can select a random sample when the target population sampling frames are very localized	- Clusters may not be representative of the target population - Important subpopulations may be left out - Statistical analysis more complicated
Multistage random sampling	Multistage random sampling combines two or more of the random sampling techniques sequentially (such as starting with a cluster random sample, followed by a simple random sample or a stratified random sample).	When a sampling frame does not exist and is inappropriate	- Multiple randomizations - Can select a random sample when the target population lists are very localized	Can be less expensive, but more complex than cluster sampling

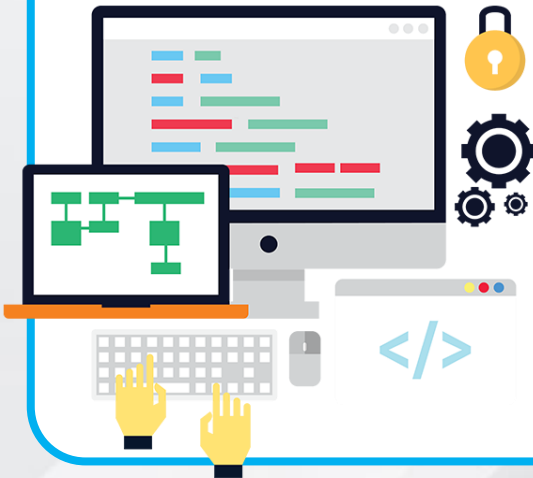
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Non-random sampling

➤ is used where:

- ✓ Large number of respondents are not required;
 - ✓ The research is exploratory;
 - ✓ Qualitative methods are used;
 - ✓ Access is difficult;
- ✓ The population is highly dispersed.

- Non-random/purposeful sampling is appropriate when there is a small “n” study, the research is exploratory, qualitative methods are used, access is difficult or the population is highly dispersed. For further information as to when it is appropriate to use non-random sampling.
- The chosen sampling technique will depend on the information needs, the methodology (quantitative or qualitative) and the data collection tools that will be required.



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Non-random/Purposeful versus random sampling

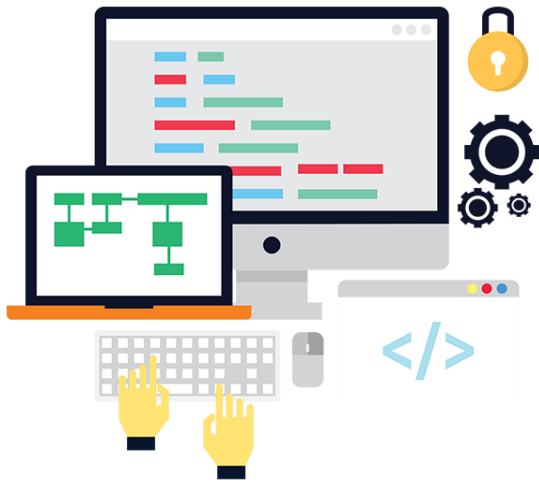


Non-random/Probability sampling	Random sampling
• Sample selection is based on the subjective judgement of the researcher	• Sample is selected at random
• Subjective method	• Objective method
• Analytical inference	• Statistical inference
• Not everyone from the population has an equal chance of getting selected	• Everyone in the population has an equal chance of getting selected
• Sampling bias may not be considered	• Useful to reduce sampling bias
• Useful when the population has similar traits	• Useful when the population is diverse
• Sample does not accurately represent the population	• Useful to create an accurate sample
• Finding the right respondents is easy	• Finding the right respondents can prove challenging
• Exploratory findings	• Conclusive findings

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•Determining sample size

- **The size of the sample** will be determined by what will be measured, for what purpose and how it will be measured.
- The size of the sample will also need to ensure, with **the maximum level of confidence possible**, that an observed change or **difference between groups is the result of the intervention**, rather than a product of chance.
- However, this may **not always be the case for non-random/purposeful sampling.**
- Determining sample size: Random sampling
 - **When a large number of respondents is required, the appropriate sample size is decided by considering the confidence level and the sampling error**

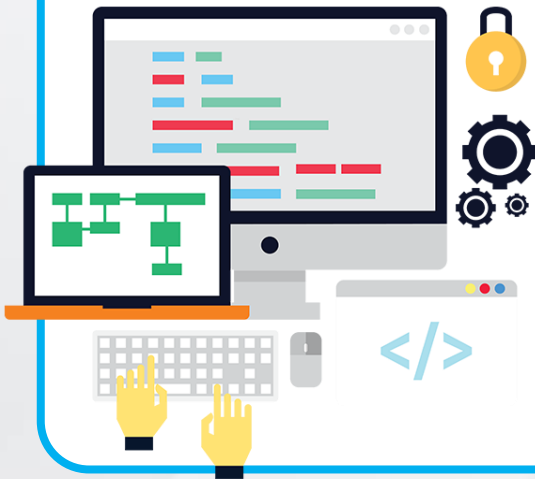


- What you are trying to measure?
- What is the purpose?
- How you will measure it?

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3. Methods, approaches and tools for monitoring and evaluation

- Methods for and approaches to data collection are systematic procedures and useful to support the process of designing data collection tools. Generally, **a mixture of qualitative and quantitative** methods and approaches to data collection are used.
- Although there are multiple definitions for these concepts, quantitative methods and approaches can be viewed as being based on numerical data that can be analysed using statistics.
- They focus on pinpointing **what, where, when, how often and how long** something occurs and can provide objective, hard facts, but cannot explain why something occurs. Qualitative methods and approaches for data collection are based on data that are descriptive in nature, rather than data that can be measured or counted. Qualitative research methods can use descriptive words that can be examined for patterns or meaning and, therefore, focus on why or how something occurs.



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•Quantitative versus qualitative approaches for monitoring and evaluation

	Quantitative approach	Qualitative approach
WHAT	• Structured • Emphasizes reliability • Harder to develop • Easier to analyse	• Less structured • Emphasizes validity • Easier to develop • Can provide “rich data” but is more labour intensive to collect and analyse
WHY	• Want to count things to explain what is observed • Want to generalize to entire target population • Want to make predictions/provide causal explanations • Know what you want to measure	• Want complete, detailed description of what is observed • Want to understand what is observed • Want narrative or in-depth information • Not sure what you are able to measure • Want to attain a more in-depth understanding or insight
TOOLS	• Surveys • Interviews • Observations	• Surveys • Interviews • Focus group discussions • Case studies • Observations
SIMPLE	• Large-n (sample) that is representative of the target population • Respondents selected using some form of random sampling	• Small-n (sample) that is unrepresentative of the target population • Respondents usually selected according to their experience
OUTPUT	Numerical data	• Words and pictures
ANALYSIS	Statistical	Interpretive

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- The following graphic provides an overview of data collection methods for both monitoring and evaluation

Frequently used data collection methods				
Surveys 	Interviews 	Focus group discussions 	Case studies 	Observation 
Additional data collection methods				
Brainstorming	Strengths, weaknesses, opportunities and threats (SWOT)	Dreams realized or visioning (DR/V)	Drama and role plays	Photos and videos
		Geographic information system (GIS) mapping		



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- **Surveys**

- **Surveys** are a common technique for collecting data. Surveys can collect focused, targeted information about a sample taken from the target population for a project, program or policy, especially data about perceptions, opinions and ideas. While surveys can also be used to measure intended behavior, there is always room for interpretation, and any data gathered may be less “factual” as what people say they (intend to) do may not reflect what they in fact do in reality.



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- **Interviews**

- Interviews are a qualitative research technique used to shed light on subjectively lived experiences of, and viewpoints from, the respondents' perspective on a given issue, or sets of issues, that are being monitored or evaluated for a given intervention. Interviews provide opportunities for mutual discovery, understanding, reflection and explanation. Interviews are of three types: (a) structured;
- (b) semi-structured; and (c) unstructured.



In-person interviews



Phone interviews



Online interviews



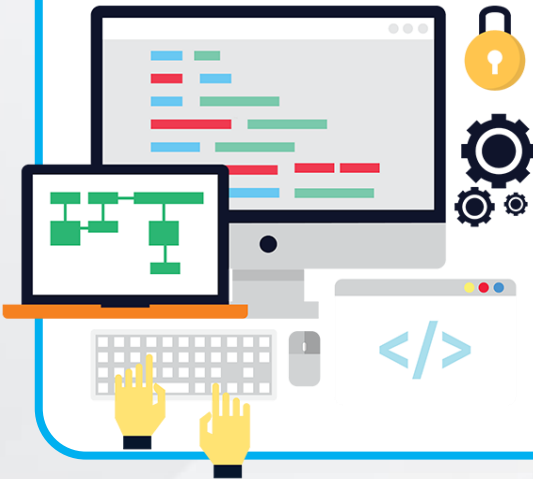
Paper questionnaires

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Formulating interview questions

Good-quality interview questions should have the following characteristics:

- ✓ Simple and clear and do not use acronyms, abbreviations or jargon;
- ✓ Not double barreled, such that it touch on more than one subject, while allowing for only one answer;
- ✓ Favour open-ended and elaborate answers.
- ✓ If including yes/no questions, these should be followed by requests for further explanations, "Why?", "In what ways?", or they should be reworded to encourage a more fine-grained answer.
- ✓ Straightforward (no double negatives), neutral and non-leading;
- ✓ Non-threatening and non-embarrassing to the interviewee;
- ✓ Accompanied by appropriate probes.

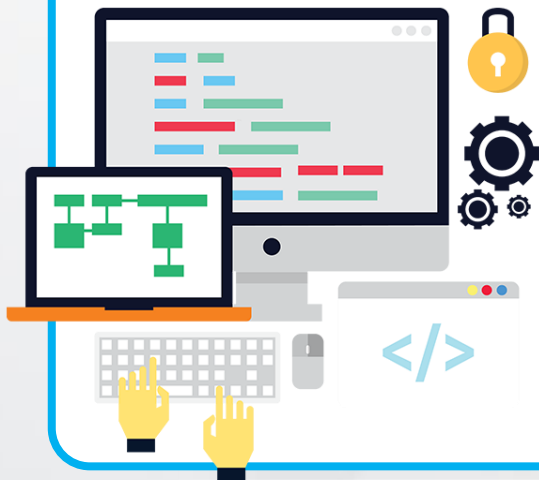


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- **Focus group discussions**

A focus group is another qualitative research technique in the form of a planned group discussion among a limited number of people, with a moderator and if possible, note takers, as well as observers if also using observations.

The purpose of a focus group is to attain diverse ideas and perceptions on a topic of interest in a relaxed, permissive environment that allows the expression of different points of view, with no pressure for consensus.



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- **Case study**

A case study is a qualitative data collection method that is used to examine real-life situations and if the findings of the case can illustrate aspects of the intervention being monitored and/or evaluated. It is a comprehensive examination of cases to obtain in-depth information, with the goal of understanding the operational dynamics, activities, outputs, outcomes and interactions of an intervention.



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• Observation

Observation is a research technique that M&E practitioners can use to better understand participants' behaviour and the physical setting in which a project, program or policy is being implemented. To observe means to watch individuals and their environments and notice their behaviors and interactions by using all five senses: seeing, touching, tasting, hearing and smelling.

Observations should be used on the following:

- ✓ Gathering data on individual behaviours or interactions between people and their environment;
 - ✓ When there is a need to know about a physical setting;
- ✓ When data collection from interviews/surveys with individuals is not feasible.



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- **Methods for impact evaluations**

- Impact evaluations aim to identify a proper counterfactual and whether impact can be confidently attributed to an intervention. Specifically, this may be done by assessing the situation of the beneficiaries “**before and after**” and “**with or without**” the intervention.
- By comparing the before and after and/or with or without scenarios, any differences/changes observed can be attributed to the intervention, with some reservations as it is not always straightforward and attribution may be more complex to assess than by answering the above scenarios.
- While there is a range of impact evaluation designs, there is also a range of methods that are applicable within these designs.
 - **To answer the specific evaluation questions, methods are flexible and can be used in different combinations within impact evaluation designs. Experimental, quasi-experimental and non-experimental are three types of impact evaluation design.**



Lecture

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Thank You

