Mohamed Khider University, Biskra, Faculty of Architecture, Civil Engineering, Hydraulics
Department of Architecture

Master 2 in **Construction Projects Management**
Course: **Data Analysis**

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CHAPTER 02

Data Collection

Part 05



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About course

DATA COLLECTION TOOLS

5. Data Collection Tools

Data collection tools are **instruments or software** used to gather and record information systematically for research.
They can be **manual** (like paper questionnaires, interview guides, and observation sheets) or **digital** (like Google Forms, SPSS, NVivo, ……).
Using the right tool ensures data that are **reliable, accurate, and easy to analyze**.



5. Data Collection Tools

Types of Data Collection Tools

1- Manual (Traditional) Tools

These are **non-digital instruments** used to collect data directly, often on paper or through in-person observation.



5. Data Collection Tools

1- Manual (Traditional) Tools

Tool	Description / Use	Example
Questionnaire (paper-based)	Printed survey sheets filled out by hand.	Field or classroom surveys.
Interview/ Focus group Guide	Printed list of questions used during interviews.	Face-to-face interviews.
Observation Checklist	Paper form used to record observations manually.	On-site behavioral or spatial observation.

5. Data Collection Tools

Advantages: Simple, low cost, no need for technology.
Limitations: Time-consuming, hard to store or analyze large data, prone to errors.



5. Data Collection Tools

Types of Data Collection Tools

2- Software-Based (Digital) Tools

These are **computer or mobile applications** used to collect, store, and sometimes analyze data.



5. Data Collection Tools

1.Questionnaire Tools

Questionnaire tools are **software applications** designed to collect data from a large audience through structured questionnaires.

01

QuestionPro

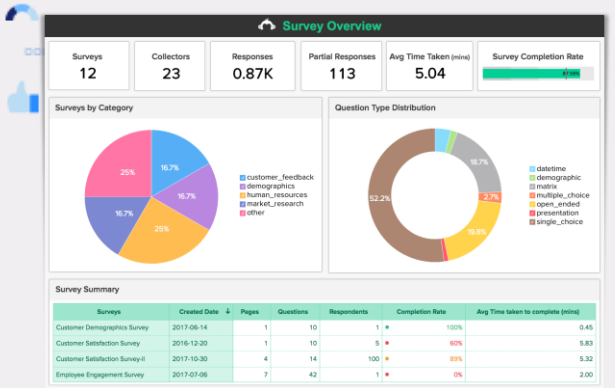
Offers advanced survey features and analytics.



02

SurveyMonkey

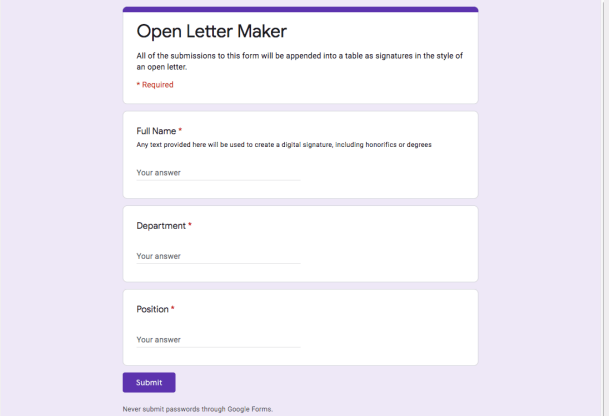
User-friendly interface with customizable survey options.



03

Google Forms

Free and easy to use, suitable for simple surveys.



5. Data Collection Tools

2.Interview and Focus Group Tools

Interview and focus group tools facilitate the collection of qualitative data through guided conversations and group discussions. These tools often include features for recording, transcribing, and analyzing spoken interactions, enabling researchers to gain in-depth insights into participants' thoughts, attitudes, and behaviors.

01

Zoom

Great for virtual interviews and focus group discussions.

02

Microsoft Teams

Offers features for collaboration and recording sessions.

03

Google Meet

Free, easy to use with a Google account

5. Data Collection Tools

3. Observation and Field Data Collection

Observation and field data collection tools are essential for gathering real-world, in-situ data. These tools can help in tracking and recording data while on-site, ensuring accuracy and efficiency. Here are some popular tools and platforms for observation and field data collection:

01

KoboToolbox

Completely free and open-source. Designed for field data collection in challenging environments.

KoBoToolbox

02

OpenDataKit (ODK)

This is for mobile data collection in field settings.

OPEN DATA KIT

03

Epicollect5

Free and easy-to-use mobile app. Supports geotagged data collection, with multimedia options (photos, audio, videos).

epicollect5

5. Data Collection Tools

Advantages: Fast, accurate, secure, easier data management and analysis.

Limitations: Needs internet or devices; may require training.



SELECTING A DATA COLLECTION METHOD/TOOL

6.Selecting a Data Collection Method/Tool

Selecting the appropriate **data collection method or tool** is a critical step that depends on several factors related to your goals, the type of data you need, available resources, and the context in which the data will be collected.



It is important to note that ***no one data collection method/tool is ideal for every situation*** nor ***will any one factor determine the most appropriate method/tool***. You must consider all the relevant factors together when deciding which ones to employ.



6.Selecting a Data Collection Method/Tool

Selecting a Data Collection Method/Tool involves the following key factors:

- **Research Questions and Objectives**: Align the method with the type of data needed (quantitative vs. qualitative) and the specific goals of the study.
- **Participant/Unit Sample**: Consider the characteristics and size of the population or sample, and how accessible they are for participation.
- **Response Rates, Time, and Cost**: Balance efficiency, expected participation, and budget constraints when choosing between methods like surveys, interviews, or fieldwork.
- **Research Team's Expertise**: Ensure the method matches the skillset of the research team, especially for more complex tools or data collection techniques.
- **Data Quality**: Focus on methods that will yield accurate, reliable, and valid data, suited to the study's requirements.

DATA COLLECTION PROCESS

Data Collection Process

In the Data Collection Process, there are **5 key steps**:

01 Decide What Data to Collect

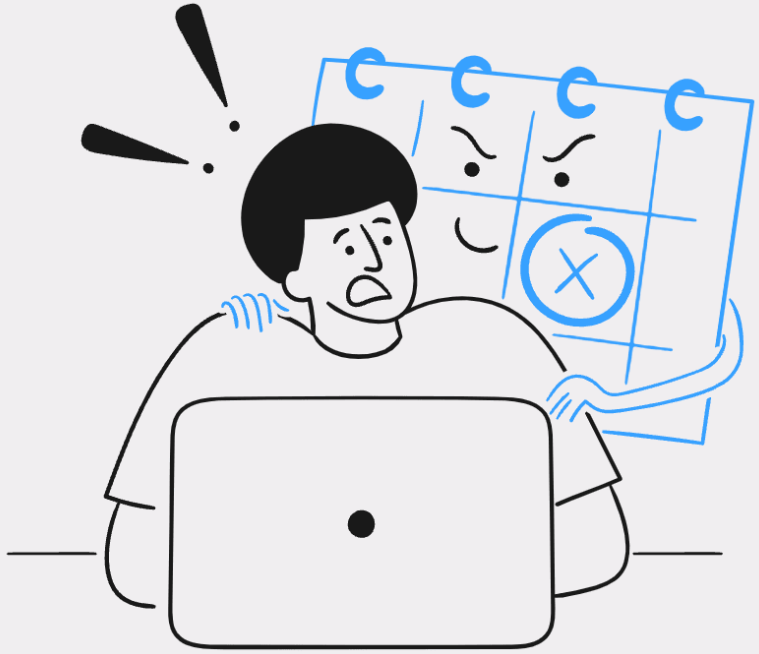
Start by determining what information you need. This includes selecting the topics to focus on, the sources to gather the data from, and how much data is required. For example, in a construction project, you might decide to collect data on worker productivity and materials used.



5. Data Collection Tools

02 Set a Deadline for Data Collection

Next, set a timeline for gathering the data. If it's an ongoing project, like tracking construction progress, you might collect data continuously. For a specific project, like evaluating a single construction phase, you would gather data within a defined time period.

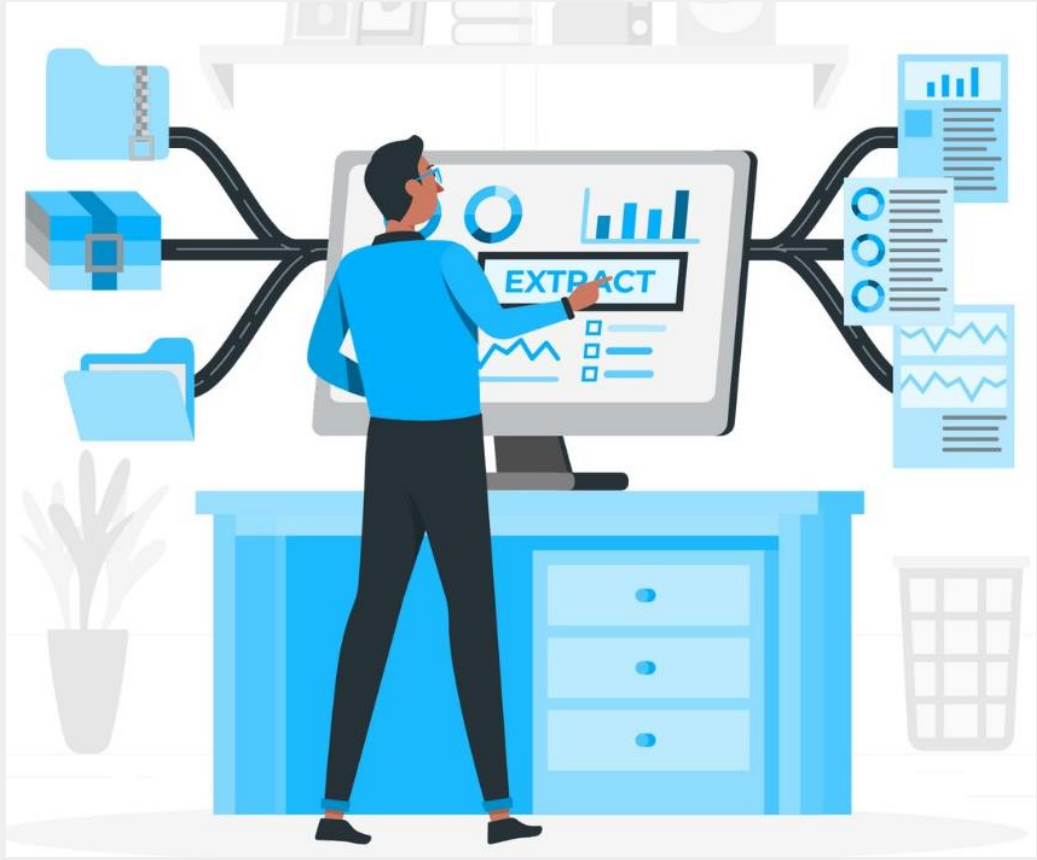




5. Data Collection Tools

03 Choose a Data Collection Method

Select the method that best fits your needs—questionnaire, direct observations, or interview, depending on the type of information you're gathering.



5. Data Collection Tools

04 Start Collecting Data

With your plan in place, begin the data collection process. Stay organized, store the data properly, and regularly check on your progress to make any necessary adjustments to the plan.

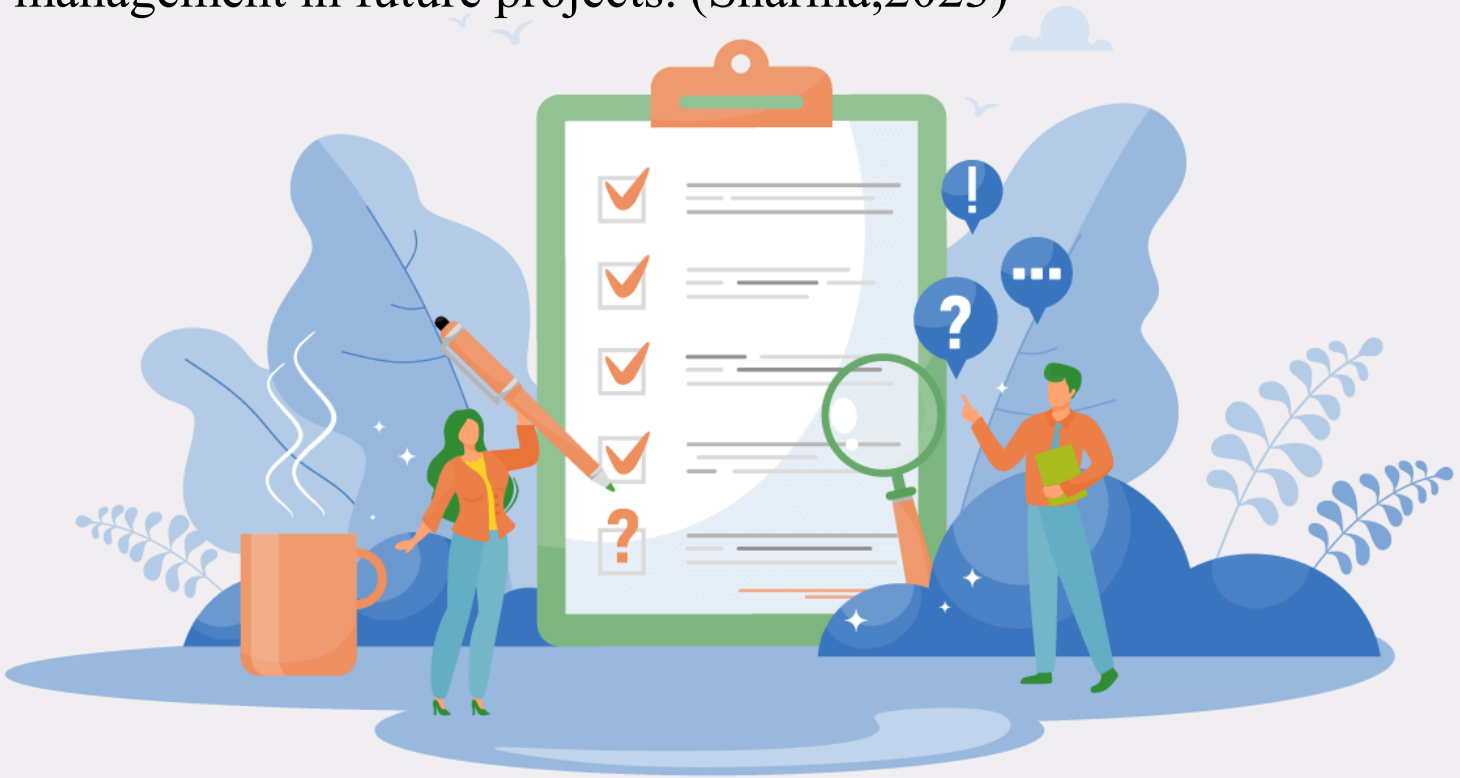




5. Data Collection Tools

04 Analyze and Use the Data

After gathering the data, analyze it to find patterns and insights. This helps you make informed decisions. For example, you might find that certain materials are being used inefficiently, prompting changes to improve cost and time management in future projects. (Sharma,2023)



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Thank You!