Research Methods for Industry Player

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Terminologies

Methodology – describe and analyze these methods; help to understand the process of scientific enquiry (the overall process to undertake research)

Methods – range of approaches used to gather data; techniques and procedures

Research Methodology in academic research.
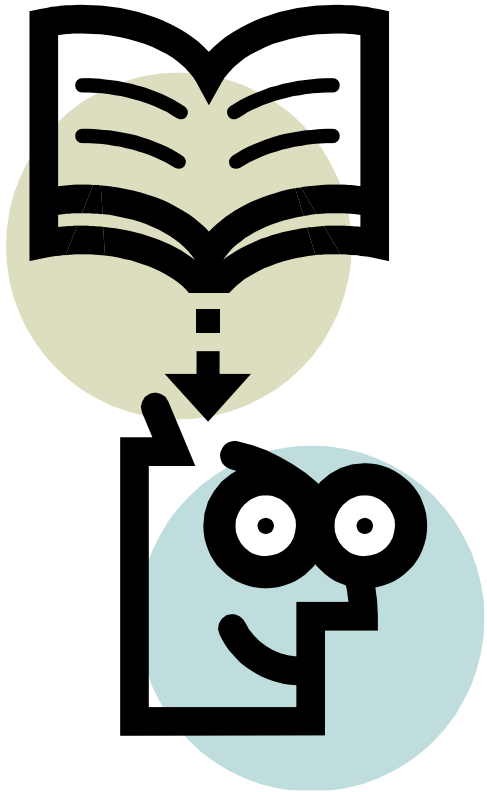
Research methodology provides the basis to make informed decisions, step by step, about how the research should be conducted.

Why research?

ACADEMICIANS

The changing nature of environment, surrounding, social economic & human life styles leads to someone questioning the phenomena.

There appears to be an endless requirement to increase the performance of life from many aspects (Remenyi et. al, 1998).

Preparing a report (a written published document)

PRACTITIONERS

R&D is the part of a company's operations that seeks knowledge to develop, design, and enhance its products, services, technologies, or processes.

Along with creating new products and adding features to old ones, investing in R&D connects various parts of a company's strategy and business plan, such as marketing and cost reduction.

Preparing a report

Methodological Flowchart >>
This is how it looks like 🤔
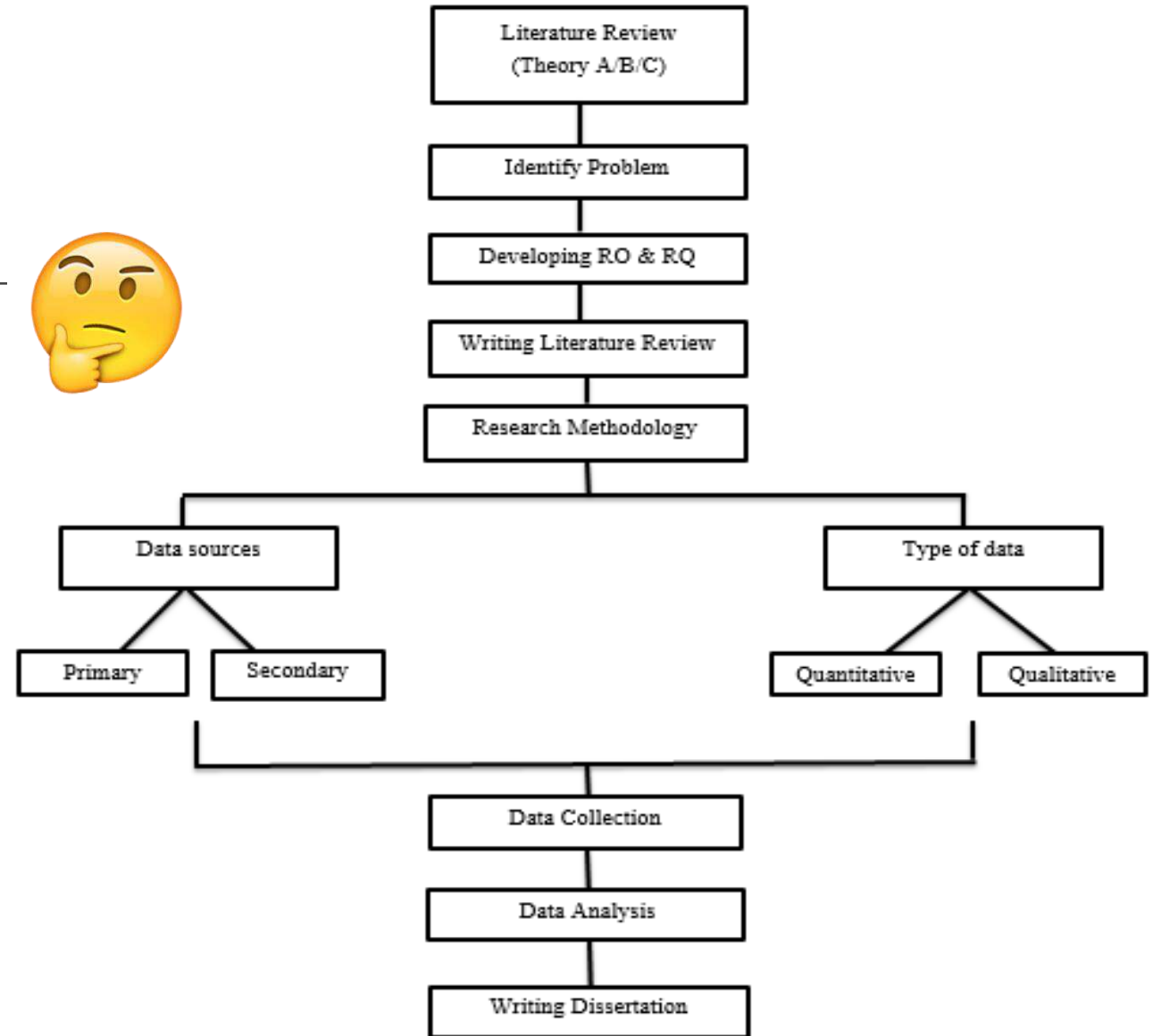
" Data is useful information that you collect to support organizational decision-making and strategy".

Why data is important?

- **To solve problems**

- **Make Informed Decisions**

- **Back Up Your Arguments**

- **Having strategic approaches (scientific and/or systematic)**

- **Utilize your resources**

- **Get The Results You Want**

- **Ensure business continuity**
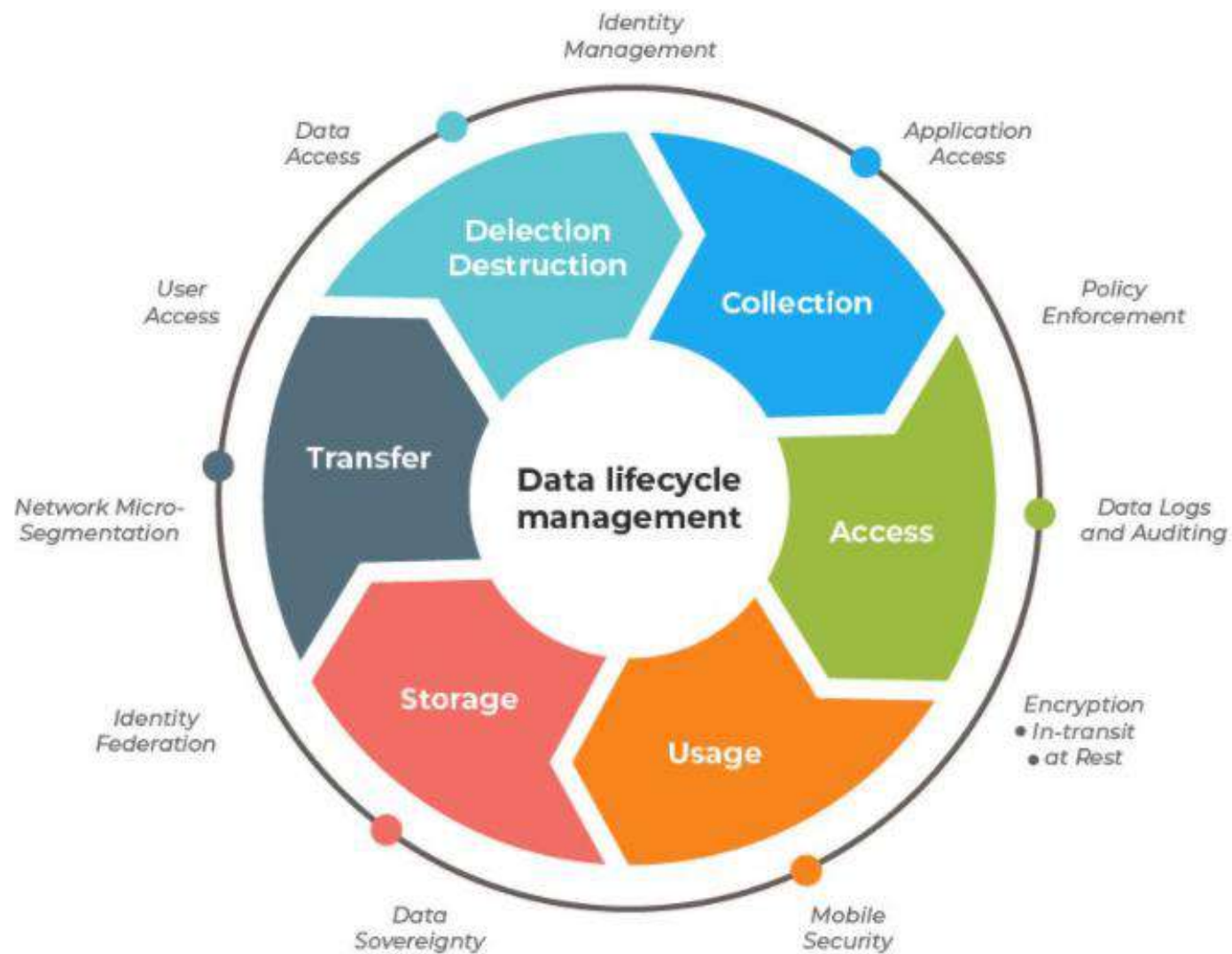
- **Making profit**

Problem Solving

Problem: Large global organization with fragmented systems and data

Solution: New systems to provide enterprise-wide data for management reporting and analysis

(Laudon 15th ed., 2018)

Data Lifecycle

From DATA to KNOWLEDGE

Knowledge is a firm asset.
- Intangible
- Creation of knowledge from data, information, requires organizational resources
- As it is shared, experiences network effects

Knowledge has different forms.
- May be *explicit* (documented) or *tacit* (residing in minds)
- Know-how, craft, skill
- How to follow procedure
- Knowing why things happen (causality)

(Laudon 15th ed., 2018)

What is data and its type?

Data is a set of values of subjects with respect to qualitative or quantitative variables.

Data is raw, unorganized facts that need to be processed.

When **data** is processed, organized, structured or presented in a given context so as to **make it useful, it is called information.**

 fundamental distinction between **two types of data**: qualitative and quantitative. The way Typically we define them as **'quantitative' data** if it is in numerical form and **'qualitative'** if it is not.

What type of data?

QUANTITATIVE

The nature of data:

Realism (real fact to everybody)

Objective measures? (Facts & figures? Experiment? Simulation?)

Can be scientifically proven

QUALITATIVE

The nature of data:

Idealism (not pre-determined, but socially constructed)

Subjective measures? (socially constructed based on knowledge gathered by examining/exploring with structured approaches

Customer satisfaction

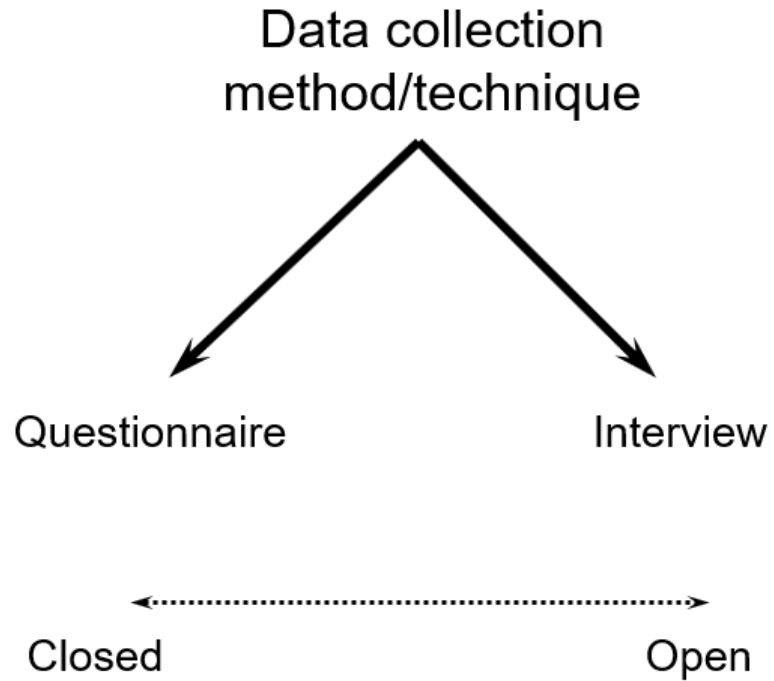Are you going to <u>measure</u> customer satisfaction level? **OR**

Are you going to seek what complaints are most made by customers? **OR**
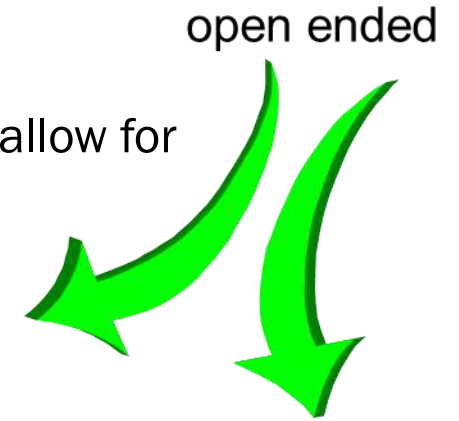
The reason why such complaints are made

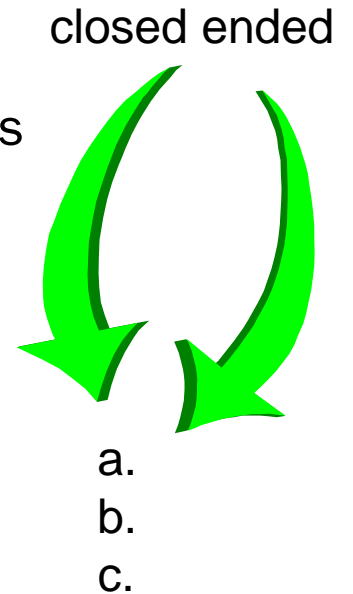**OR** you need both type of data to help you better understand your customer!

How to collect data?

open ended

open ended (anything goes) allow for unexpected revelations

Data collection
method/technique

Questionnaire   Interview

Closed   Open

closed ended >interviewee must
choose between fixed alternatives

closed ended

a.
b.
c.

Data sampling

QUANTITATIVE DATA

Three fundamental steps :

i.   Identify a population

ii.   Define the sample size

iii.   Select the sample

QUALITATIVE DATA

Researchers in qualitative research select their participants according to their :

i.   characteristics

ii.   knowledge

iii.   specific experience

Examples of Quantitative Methods: Questionnaire

- Type of questions: Likert-scale questions, yes/no or true/false, multiple choice, rank in order

- Phrasing the questions: reading complexity, leading questions, loaded terms, too much question in one sentence, middle position (such as 'neutral' in Likert-scale)

- Question sequence and length: inclusion of introductory and closing statement, optimum length of the questionnaire, question sequences (not a sensitive question in the early part of the questionnaire for instance)

- Pre-test and revision: the use of pilot questionnaire to improve the questionnaire (clarity, phrasing, etc.)

- Response rate: try to get prior commitment to participate (pilot can be useful), an effective cover letter, consider giving incentives, final package (cover letter, questionnaire, any incentives, self-addressed-stamped envelope), follow ups

Quantitative data analysis

SUMMARIZING NUMERICAL DATA

- Mean: merely the "average" of a set of data

- Median: the value in the centre of the data-set when they're arranged from the smallest to the largest

- Midrange: observing the middle value between the lowest and the highest values in the data set

- Mode: the value that occurs more than once and the most often

ANALYZING NUMERICAL DATA

- Standard Deviation and Variances: measures the variation of the samples about the sample mean (i.e. a measure of variation that indicates the typical distance between the data and the mean)

- Rank analysis: Kruskal-Wallis, Spearman Rank Correlation, Friedman test

- Inferential methods (deriving conclusions about a population by collecting a sample): Confidence interval, hypothesis testing, ANOVA, chi-square.

- Correlation: measuring the strength of the relationship between the dependent variable and the independent variable

Examples of Qualitative data

INTERVIEW TRANSCRIPT

FIELD NOTE

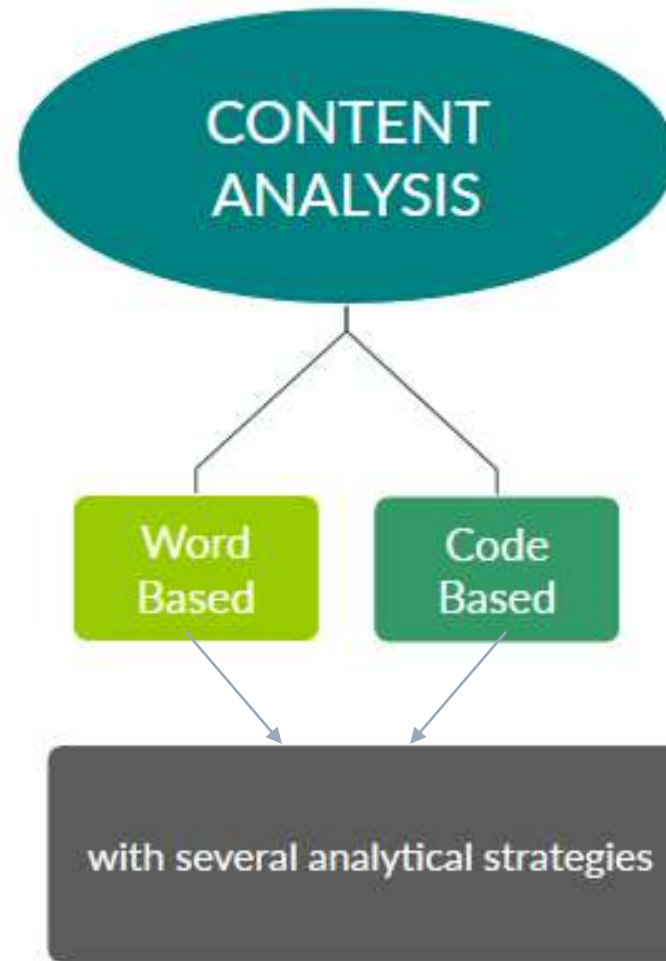OBSERVATION

PICTURE

CUSTOMER COMPLAINT

VIDEO

DOCUMENT

Qualitative data analysis

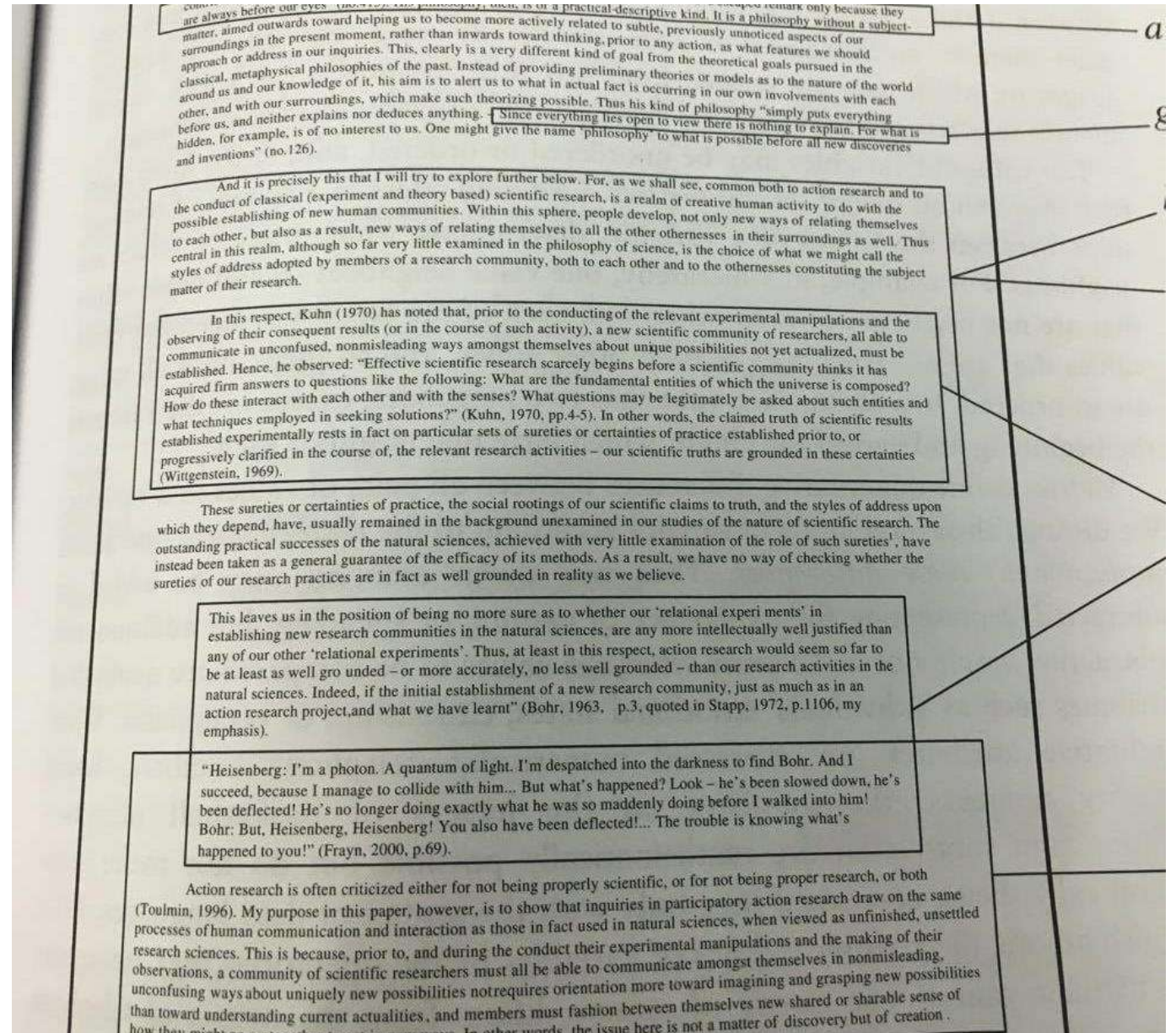- How can the **'winnowing'** process be done from the qualitative *raw data*?

> Display data/data display,
> Identify codes,
> reduce information,
> count frequency of codes,
> relating categories

Analyzing data - Coding process

(Krippendorf, 2004)

Highlight the text that provide the info and assign it as a code (code-based approach)

Data Display/identify codes/reduce information/count frequency of codes/relating categories (data matrices & pattern matching)>>>This manual analysis needs to be understand to relate with Qualitative software analysis such as Nvivo.

Themes	Interview Questions	Code (interpretation)	Interview statement
Social Purpose	What is your view in social purpose?	Community alignment	When we use the organisation given them responsibility to manage, we ask them to do the work accordingly, helps us monitored all activities, this approach succeed.
		Community participation	They can cooperate with each other, they know their responsibilities and know how to manage.
	How it might benefit the community?	Self-belonging	I think it is alright, because organisation knows what they want, what community needs, because they are within the community and can fulfil the needs depending on their income, so they don't use it for their own benefit but it is solely for the profit that is used back for the community.
		Community empowerment	They can cooperate with each other, they know their responsibilities and know how to manage.

Developing 'code'

This highlighted content process called >>> coding>>>to develop code

Qualitative data analysis – example of interview analysis

	Interviewee 1	Interviewee 2	Interviewee 3
Issue A	1A	2C	3B
Issue B	1B	2A	3C
Issue C	1C	2B	3A

Summaries	
Issue A	1A + 2A + 3A
Issue B	1B + 2B + 3B
Issue C	1C + 2C + 3C

• Summarising each codes (thematic)

• Establishing relationship between the issues (if there's any)
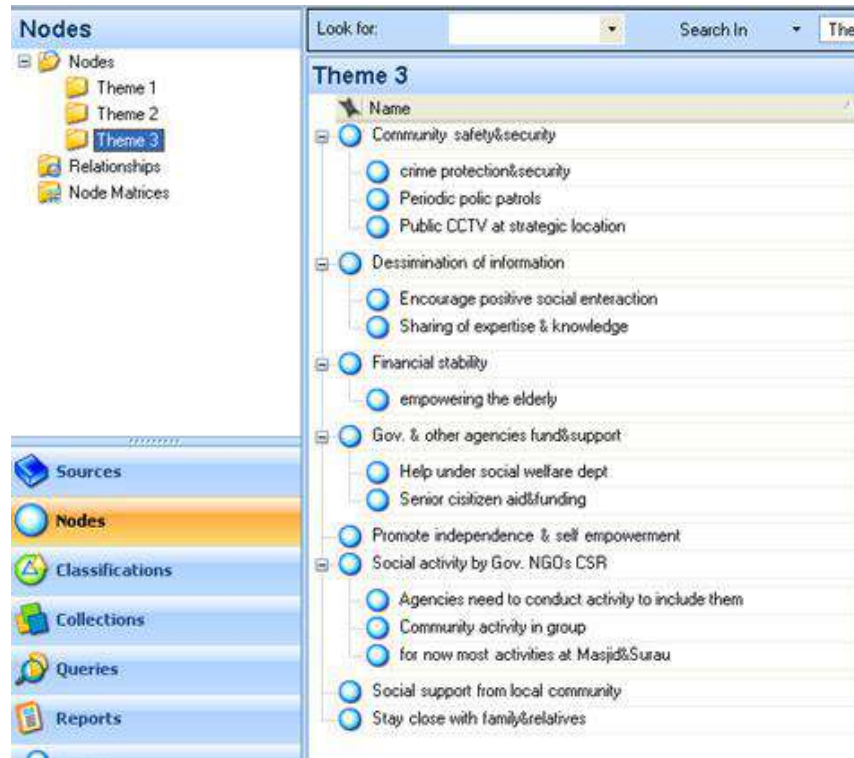
• Develop a model to illustrate the relationship

Example of analysis on customer complaint, analyze manually or using a software?

Complaint Barriers for Dissatisfied Customers	Strategies to Reduce These Barriers
Inconvenience ➤ Hard to find right complaint procedure ➤ Effort involved in complaining	➤ Put customer service hotline numbers, e-mail and postal addresses on all customer communications materials
Doubtful Pay Off ➤ Uncertain if action will be taken by firm to address problem	➤ Have service recovery procedures in place, communicate this to customers ➤ Feature service improvements that resulted from customer feedback
Unpleasantness ➤ Fear of being treated rudely ➤ Hassle, embarrassment	➤ Thank customers for their feedback ➤ Train frontline employees ➤ Allow for anonymous feedback

Comparison between manual content analysis process with Nvivo software

Summary of analysis done using Nvivo

Example of the content analysis process

https://www.planningmalaysia.org/index.php/pmj/article/view/417

Note :You can refer to this open access journal paper to get some idea on the analysis done and how its being transformed into final findings.

Ethical consideration in data collection

Patton (2002) offered a checklist of general ethical issues to consider, such as:

•Reciprocity (exchanging things with others for mutual benefit)

•Assessment of risk

•Confidentiality,

•Informed consent

•Data access and ownership.

Personal Data Protection Policy
(Revised 1st June 2017)

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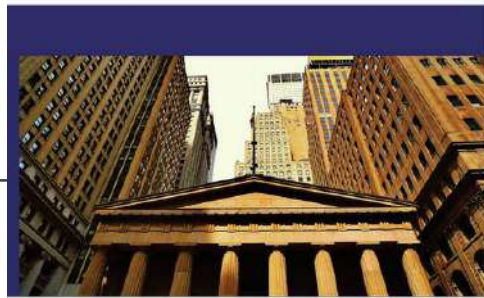
• the type of personal data we collect and how we collect it
• how we use your personal data
• the parties that we disclose the personal data to; and
• the choices we offer, including how to access and update your personal data.

Personal Data We May Collect from You

We may collect the following personal data about you:

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• contact information such as billing address, premises address for electricity supply, telephone number, mobile phone number, fax number and email address
• payment information such as your debit or credit card information, including the name of cardholder, card number, billing address, expiry date and other bank account details
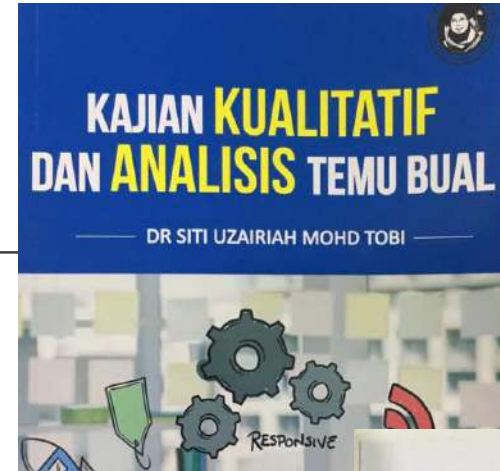
Books so far…
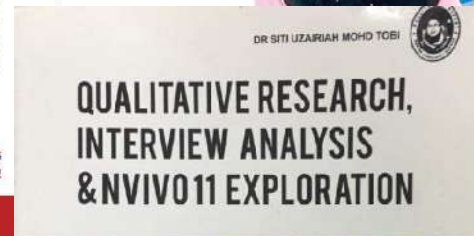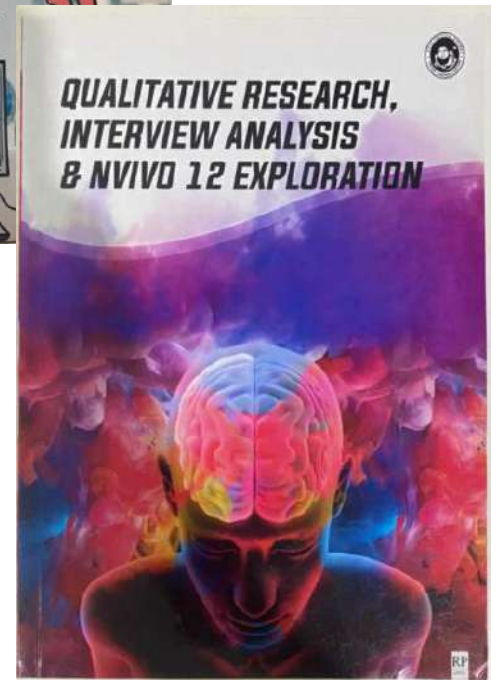
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THANK YOU