

Developing a Research Question Using Existing Data

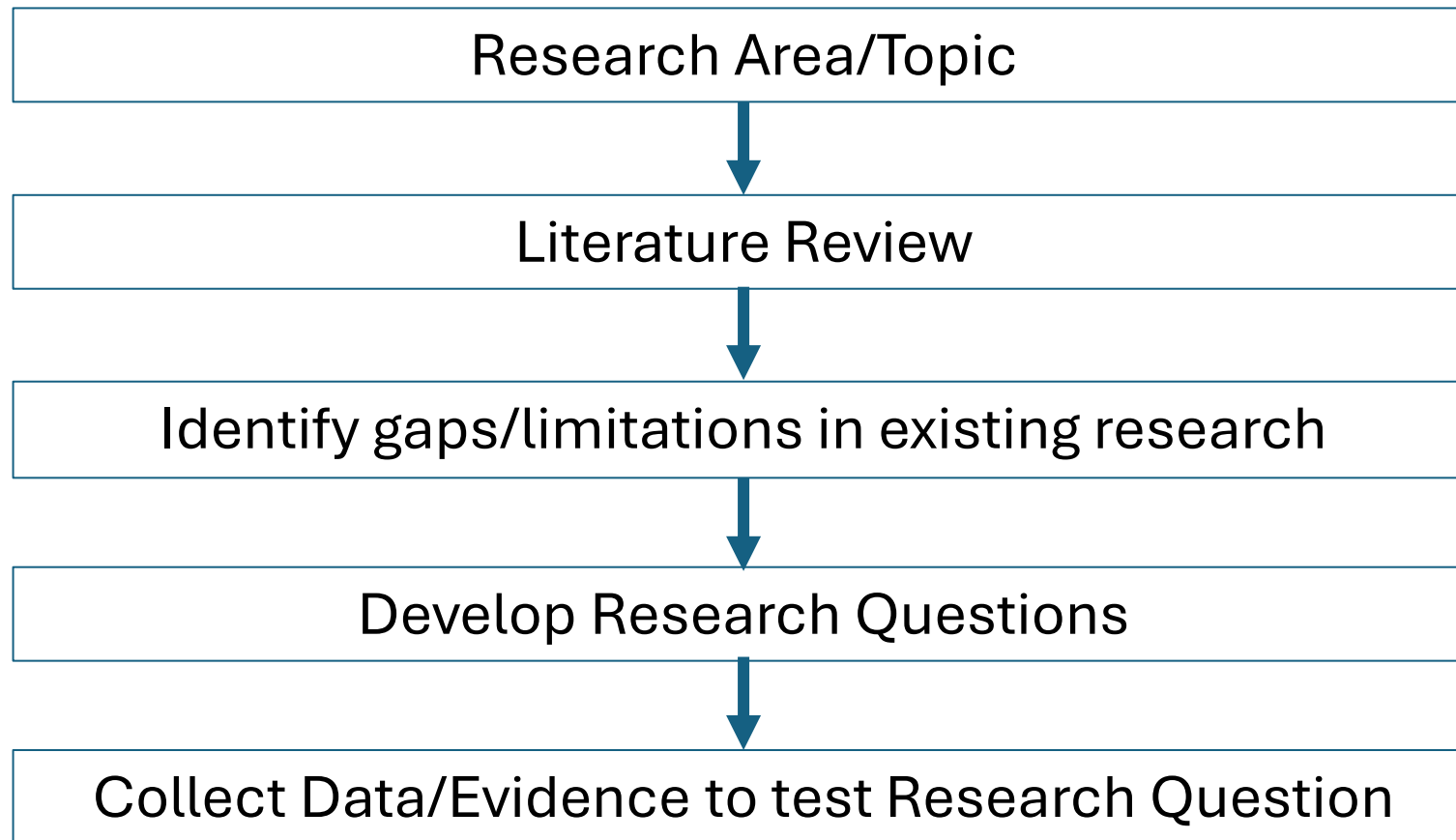
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Methods Hub

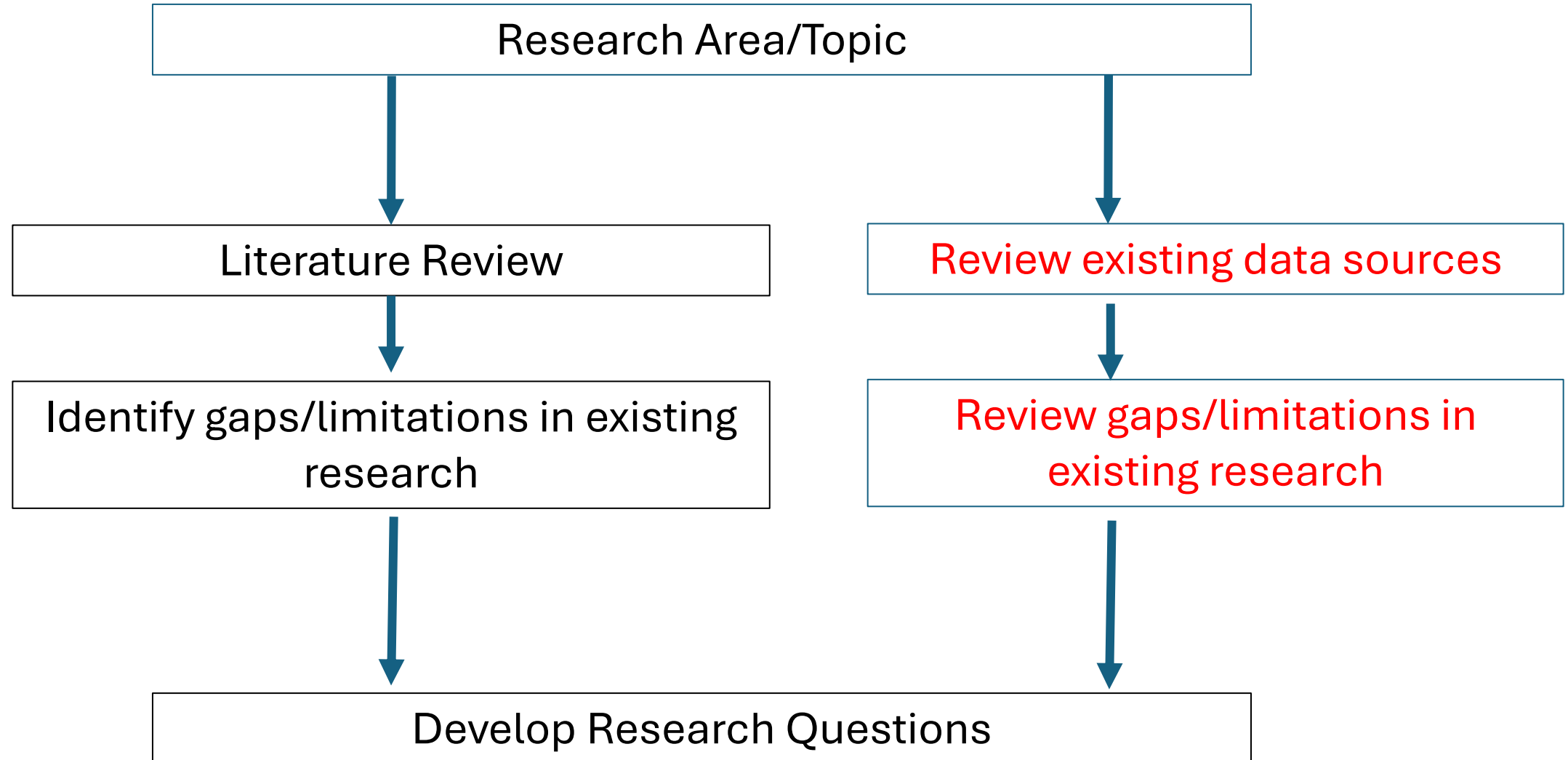
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Developing RQs: Standard Model



Developing RQs with existing data



Understand the existing dataset: Variable availability and measurement

- Topic coverage: Is your research area covered?
- Themes/Questions/Variables:
 - Are they directly measured, a proxy, or a composite?
 - Measurement Error: Validity and reliability?
 - Are confounders/covariates measured well?
 - Timing
 - Intensity/dose

Understand the existing dataset: Metadata

- Provenance and design: Who collected it, why, and how (survey, claims/EHR, registry, sensors, administrative, social media, trials)?
- Sampling and coverage: Sampling frame, inclusion/exclusion rules, response rates, geographic and time coverage, updates/revisions over time
- Units and structure: Unit of analysis (person, visit, hospital, county), clustering, repeated measures, cross-sectional vs. longitudinal, event logs versus aggregated counts
- Metadata: Codebooks, variable definitions, coding schemes (e.g., ICD revisions), changes over time, derived fields

Literature review

- Not just a standard lit review on research topic
- All research outputs that use the data source- check citations of the data source- both the name and data doi
- All research outputs from the researchers who collected the data source

Sources of social research questions

	Deduction	Induction
• Sponsors and teachers • Social problems • Existing literature	• Intellectual puzzles and contradictions • Gaps between official accounts and facts on the ground • Replication • Opposition • Personal experience	• New methods / theories • New social trends • The counter-intuitive • Deviant cases and atypical events

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	With analyses of existing data-	
	How original and significant is the research?	How significant is the research?

Adapted from Bryman: *Social Research Methods* 5th edition

Research quality criteria: UK and HK

- Originality
- Significance
- Rigour

Deductive Analyses- considerations for RQs

- Originality and Significance
 - Replication Studies
- Statistical Power and Precision
- Analysis Plan and Transparency

Inductive Analyses- considerations for RQs

- Significance
- Ethical considerations
- Data linkage and harmonisation issues

Questions?