

Hypothesis Framing

The following table is often used to frame specific hypotheses relevant to a question which defines the research objective.

Use this table to discuss the research questions given below; to formulate relevant hypotheses; to identify relevant variables (IV and DV) and to consider appropriate types of data to collect and methods of analysis to use:

Ontology		Epistemology	
Data types	Data Sources [Sampling]	Data-gathering methods	Techniques
What are the Variables? (Dependent (DV) and Independent (IV))	Who / what are the data sources? What is my sample?	How will I obtain the data? How will I test the data for significance, reliability?	How will I apply the data-gathering / analysis methods? How will I present the results of my data analysis?
Are data values (mainly) qualitative or quantitative?	What are the units of measurement / evaluation?	What forms of analysis will I apply to the data?	Is my sample normal? What is its 'demographic'?

Research Questions:

- *Is cost of technology or lack of skills the chief factor inhibiting SMEs in the manufacturing sector from adopting ERP (enterprise resource planning) systems for their businesses?*
- *Is the 'Index of Production (UK)' / 'Index of Manufacturing Production (USA)' a better predictor of economic growth than stock exchange performance (FTSE100 / S&P 500)?*
- *Within the EU through the first decade of this century, studies showed an average gender pay gap of 17.5% between men and women in employment. Can employers provide any justification for this difference?*

Use the table to identify – in relation to the specific questions – answers to the following:

Questions:

1. What are the relevant hypotheses (predictions) I could make in answer to this question?
2. What types of data (both primary and secondary) do I need to test these hypotheses?
3. What units of measurement should I use for these data values?
4. What am I correlating with what? (Which variables are dependent and which ones are independent)?
5. Who are my data sources? What population am I investigating? What sample from this population should I use? How big?
6. What are the most suitable data-gathering methods for each type of data.
7. In relation to my hypotheses, how will I analyse the data to turn it into evidence to support or contradict those hypotheses?
8. For each method of data gathering and analysis, which specific techniques will I use to apply the method (e.g. online survey versus distributed printed survey; structured versus unstructured interviews; descriptive statistical analysis versus inferential statistical analysis)?