

University of Mumbai



M.S.C IN INFORMATION TECHNOLOGY
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**PSIT101 & PSIT1P1 - RESEARCH IN
COMPUTING**

DR. (MRS.) R. SRIVARAMANGAI
HEAD, DEPARTMENT OF INFORMATION TECHNOLOGY
RSRIMANGAI@UDIT.MU.AC.IN

UNIT I - CHAPTER 2
THEORY BUILDING

BASED ON WILLIAM G. ZIKMUND

THEORIES

Theories are nets cast to catch what we call “the world”: to rationalize, to explain, and to master it. We endeavor to make the mesh ever finer and finer.

Karl R. Popper

TWO PURPOSES OF THEORY

- Prediction
- Understanding

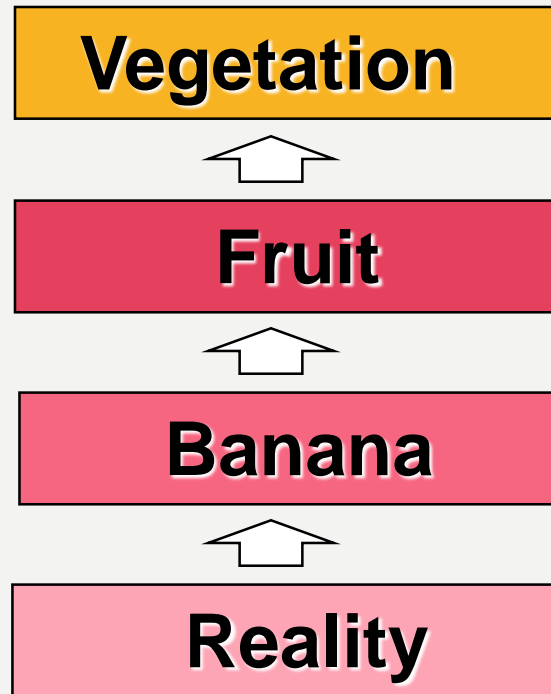
THEORY

- A coherent set of general propositions used as principles of explanation of the apparent relationships of certain observed phenomena.

CONCEPT (OR CONSTRUCT)

- A generalized idea about a class of objects, attributes, occurrences, or processes that has been given a name
- Building blocks that abstract reality
- “leadership,” “productivity,” and “morale”
- “gross national product,” “asset,” and “inflation”

A LADDER OF ABSTRACTION FOR CONCEPTS



↑
Increasingly more abstract

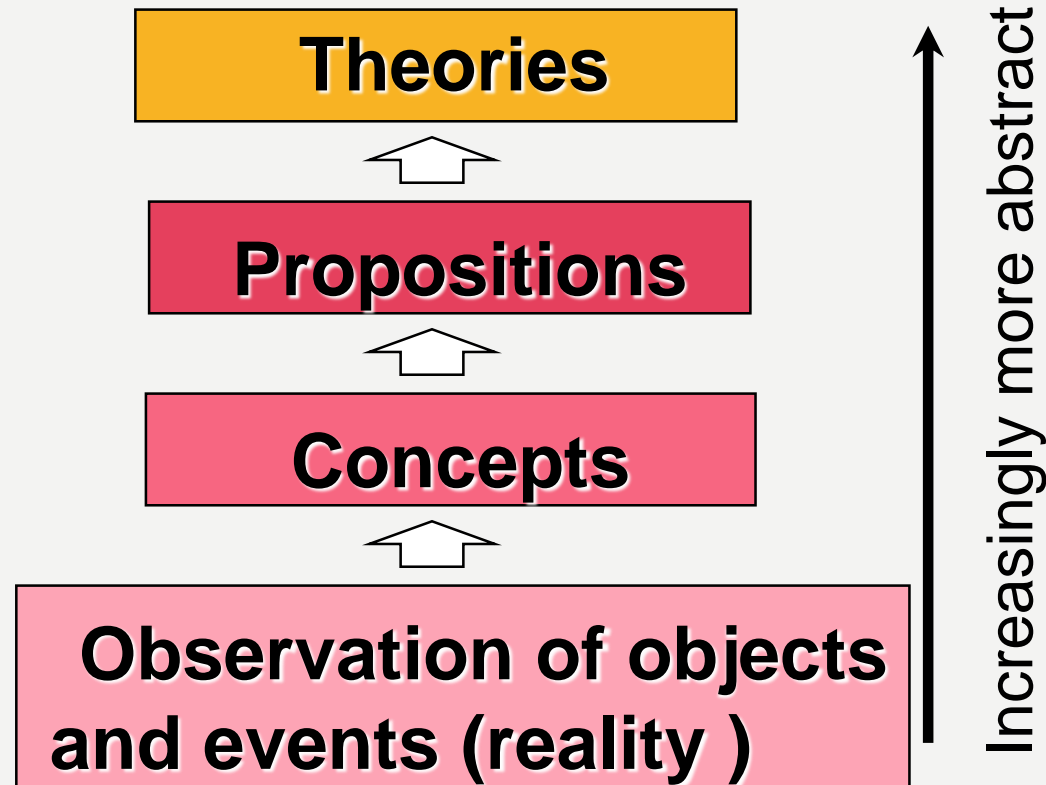
SCIENTIFIC BUSINESS RESEARCHERS OPERATE AT TWO LEVELS

- Abstract level
 - concepts
 - propositions
- Empirical level
 - variables
 - hypotheses

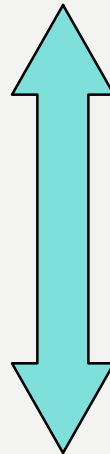
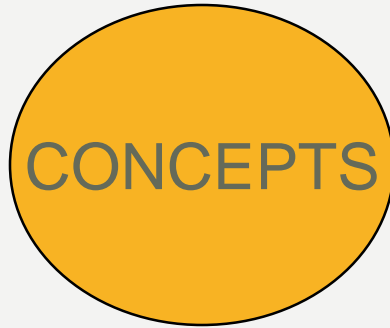
DEFINITIONS

- Abstract level -In theory development, the level of knowledge expressing a concept that exists only as an idea or a quality apart from an object.
- Empirical level -Level of knowledge reflecting that which is verifiable by experience or observation.

THEORY BUILDING A PROCESS OF INCREASING ABSTRACTION



CONCEPTS ARE ABSTRACTIONS OF REALITY



OBSERVATION OF OBJECTS
AND EVENTS (REALITY)

Abstract
Level

Empirical
Level

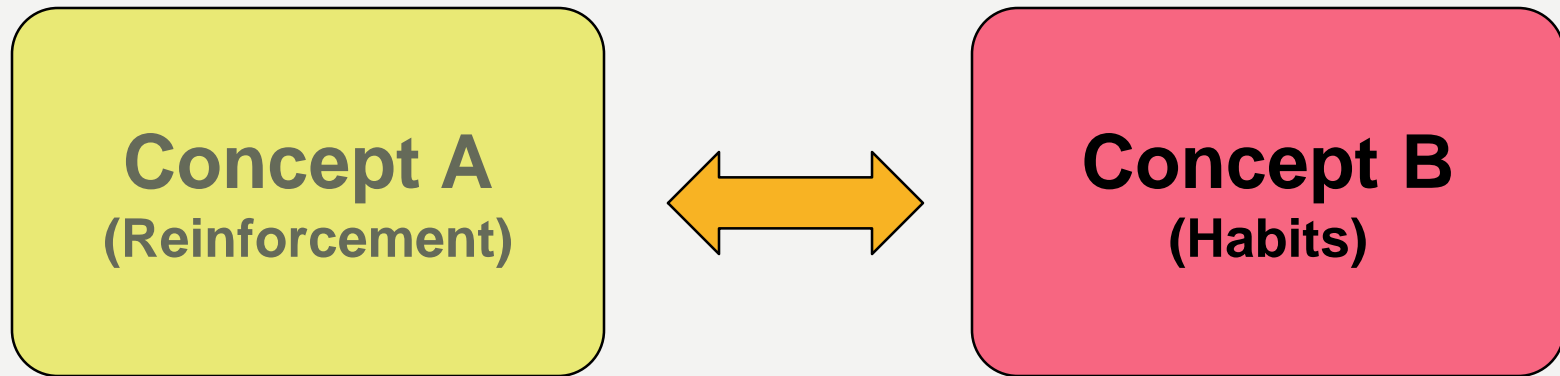
SCIENTIFIC METHOD

The use of a set of prescribed procedures for establishing and connecting theoretical statements about events and for predicting events yet unknown.

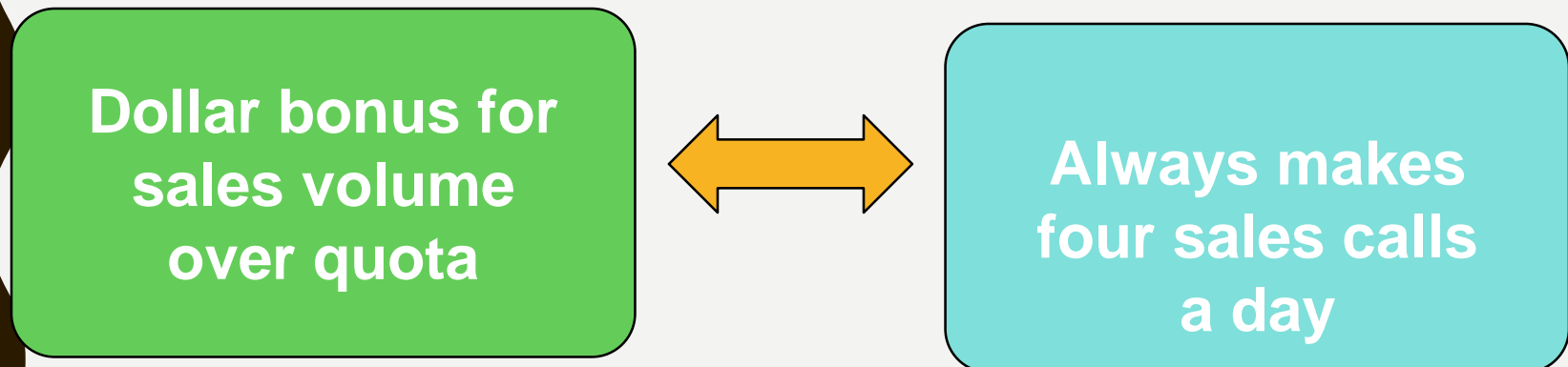
ABSTRACT LEVEL

- Concepts abstract reality.
- Propositions are statements concerned with the relationships among concepts.

PROPOSITION AT ABSTRACT LEVEL



Hypothesis at Empirical Level





- A **hypothesis** is a proposition that is empirically testable. It is an empirical statement concerned with the relationship among variables.
- A **variable** is anything that may assume different numerical values.

THEORY AND SONG

A fact without a theory
Is like a ship without a sail,
Is like a boat without a rudder,
Is like a kite without a tail.

A fact without a figure is a tragic final act,
But one thing worse in this universe
Is a theory without a fact.

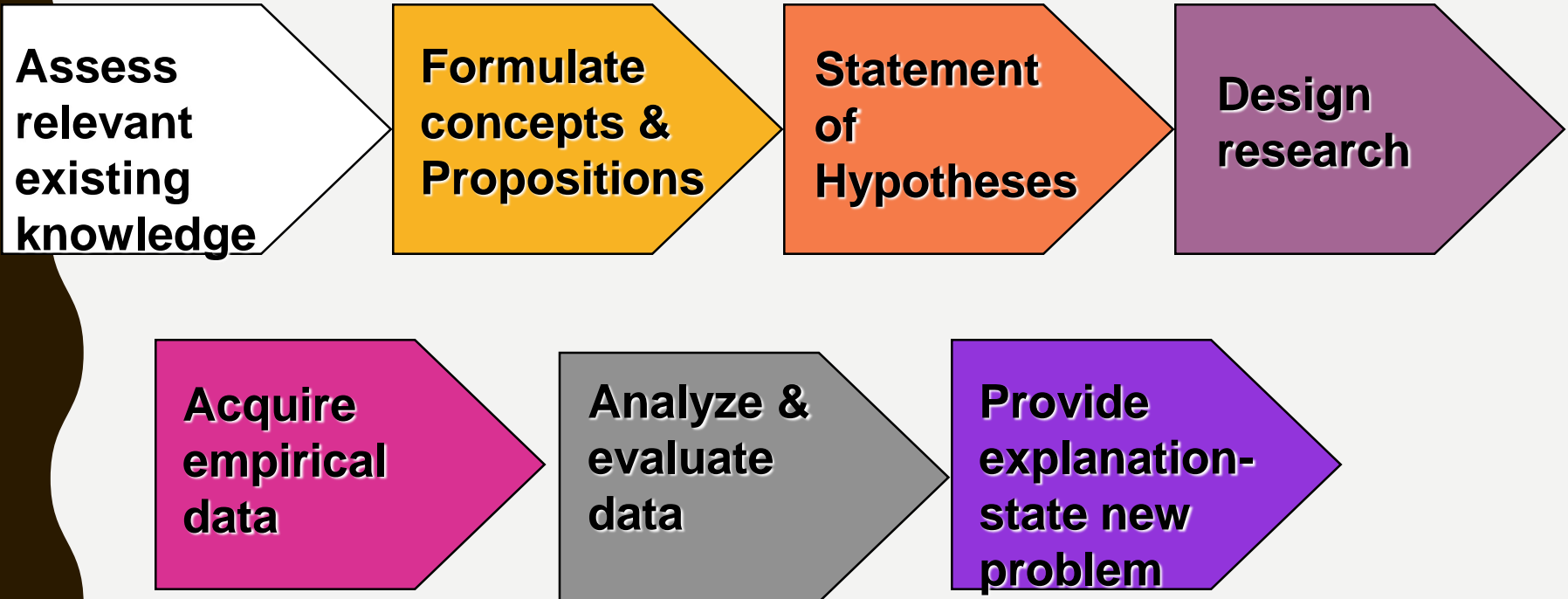
DEDUCTIVE REASONING

- The logical process of deriving a conclusion from a known premise or something known to be true.
 - We know that *all managers are human beings*.
 - If we also know that *John Smith is a manager*,
 - then we can deduce that *John Smith is a human being*.

INDUCTIVE REASONING

- The logical process of establishing a general proposition on the basis of observation of particular facts.
 - All managers that have ever been seen are human beings;
 - therefore all managers are human beings.

THE SCIENTIFIC METHOD: AN OVERVIEW



ZEN AND THE ART OF MOTORCYCLE MAINTENANCE

