

Chapter 1

Research Foundations and Fundamentals

SMARTBOOK

This is a digital version of *Business Research Methods*, which can be accessed online via laptop. It is linked to *Business Research Methods*' CONNECT features. The content of *Business Research Methods* SmartBook is the same as the printed version of *Business Research Methods* but the digital features help focus a student's learning on content. Students pay for a subscription to *Business Research Methods* SmartBook for the duration of your term or semester.

- As the instructor, you may assign *Business Research Methods* SmartBook or students may choose to subscribe to SmartBook on their own.
- If you want your students to have access to *Business Research Methods* SmartBook and its learning features, you will need to set up your *Business Research Methods* Connect course.

CONNECT

Connect is the location for course preparation resources:

- **Quiz questions**
 - You select from this additional set of multiple-choice and true-false questions for each chapter to create a self-assessment quiz for that chapter. Each question provides a pop-up learning note for the correct answer, that you may opt to show (or not).
- **Connect Library for Instructors**
 - PowerPoint Slide Sets for each chapter
 - Instructor's Manual for each chapter
 - Test Bank for each chapter
 - Written Cases
 - Video cases
 - Additional Materials Related to Cases (e.g., Case Discussion Guides, data sets, video material, etc.)
 - Supplemental appendices on topics you may want to assign related to a chapter.
 - Supplemental chapter-related materials on topics you may want to assign related to a chapter.
 - Sample Student Project
 - Excel Chart Templates
- **Connect Library for Students**
 - Written cases
 - Video cases
 - Additional Materials Related to Cases (e.g., data sets, video material, etc.)
 - Additional Materials Related to Chapters

- Supplemental appendices
- Supplemental chapter-related materials
- Sample Student Project
- Excel Chart Templates

POWERPOINT

- A complete PowerPoint slide deck comes with this chapter.
 - Slides are grouped to assist different teaching styles and to facilitate full use of the book's learning features.
 - Most slide groups are designed to facilitate discussion or student engagement; suggested exercises are embedded in the notes section of the slides.
 - The Chapter Outline group can be used to guide a lecture.
 - Each slide deck contains the following slide groups:
 - Industry Thought Leadership slides
 - one or more for each chapter, feature a quote tied to a chapter issue for discussion.
 - Additional quotes may appear in the Active Learning Exercises of this manual.
 - Exhibits slides
 - one or more slides for each Exhibit (depending on exhibit size and complexity), provide a full set of all exhibits that appear in the book.
 - Text Image slides
 - provide in-text photos that appear with captions or that are cued to in-text examples; use these for discussion.
 - Snapshots/CloseUps/PicProfiles slides
 - one or more slides for each featured item in the chapter, serve as discussion aids for those real research examples.
 - PulsePoint
 - Provides a research finding that can be the point of discussion; consult the **Active-Learning Exercises** section.
 - From the Headlines slide
 - one per chapter, features the designated discussion question from the **Review and Discussion Questions** section at the end of each chapter; the suggested answer appears later in this manual.
 - Video Discussion slide is a divider slide.
 - Use the small gold triangle in the lower left corner to enter a link to the video you wish to use. You'll find some recommendations in the **Active-Learning Exercises** section.
 - Case Discussion slide is a divider slide
 - The text and this manual list the cases that are appropriate for this chapter.
 - Consult the separate *Case Discussion Guide* for discussion ideas.
 - Use the small gold triangle in the lower left corner to enter a link to the video case or video case material (for some written cases) you wish to use; right click the triangle to enter a link location.
 - Learning Objectives slide(s)
 - one or more slides for each chapter, can be used for chapter review to determine objective achievement from student reading, or at the end of a class segment to determine objective achievement.
 - Chapter Outline slides
 - provide a thorough coverage of chapter concepts; these slides are suitable for use as an aid to the lecture-mode teaching style.

- Key Term slide(s)
 - one or more for each chapter, provide a list of key terms from the chapter that can be used for oral review and quizzing.
- Any one slide deck might be used for several class sessions, or only one, according to your plan.

Faculty are encouraged to reorder the slides in any order that fits the activities you plan for your class session or just make notes of the slides you want and jump to them.

TEST BANK

The test bank for each chapter contains the following:

- Multiple-choice or true-false objective questions of one or more types, with answer noted, categorized by difficulty according to Bloom's Taxonomy.
 - Definition-based questions on key terms and concepts
 - Application-based questions posing decision scenarios
 - Application-based questions asking for justification or explanation
- Essay Questions, with one possible answer noted.

ACTIVE-LEARNING EXERCISES

"Active learning" means students engage with the material, participate in the class, and collaborate with each other in order to understand and retain the material. In an active-learning environment, students don't simply listen; they aren't expected to memorize what is said but to understand the material, and later testing reflects this. An active-learning environment requires prior preparation, both from you and the students; it helps if you can tell them ahead of time what you will be doing in the next class.

The essence of an active-learning exercise is that the instructor sets the stage with a scenario and one or more questions. To get the students to collaborate, the instructor may form teams based on some criteria. Active-learning exercises do not always have to be team-based. There is always an output to an active-learning exercise—either written or oral; you can provide a critique or assign another student team to provide one. You should provide an assessment on these exercises; quality participation in such exercises should carry some weight in a student's grade. My experience is that the more weight you give the exercises, the more and better the participation. The more participation; the greater the learning.

This text has ample material for active-learning exercises. With the material below, you ask students to provide a review or critique, provide an alternative approach, given an example, analyze an argument, provide the alternative to the argument given, or apply concepts to a real management dilemma.

- **PicProfiles**
 - *Extended Reality Use in Business*...(image: donut graph) an Accenture Consultancy study identified XR as one of four major technology trends affecting business in the next decade.
 - Use this to discuss technology and its impact on business in general and research in particular.
 - *National Youth Tobacco Survey*...(image: man vaping) How the Food and Drug Administration operationally defined vaping.
 - Use this to discuss the importance of operating definitions. Ask students to operationally define other tobacco/tobacco substitute products.
- **Snapshots**
 - *Analytics Under Delivers Compared to its Hype*...(Image: Pie chart of State of Data Analytics)...An MIT/Sloan Management Review and SAS report on data analytics users
 - use this to discuss the state of data driven decision making in business.

- **The Importance of Why: Big versus Small Data**... (image: Lego blocks)... how big data alone misled Lego and how a small research project revealed the strategy that pulled it back from near bankruptcy.
 - Use this to discuss the importance of both types of data
- **Research on Cyber Security**... (image: computer hacker and various cyber attacks)... How Alert Logic used research to discover cyber criminals' paths.
- **CloseUp**
 - *None in this chapter.*
- **Images**
 - Photograph of football players
 - Use this to discuss the distinction between data, information, and insights
 - Photograph of key performance indicators on expanded computer screen business dashboard...
 - use this to discuss the role of research in collecting information for KPIs and for maintaining business dashboards
 - Photograph of an older individual on a climbing wall.
 - Caption: *Apply deductive and inductive reasoning to the image to develop conclusions about what will happen in the next photo frame.*
 - Besides a great discussion about reasoning, this exercise can bring out biases about age and gender, and a discussion about how researcher need to guard against bias.
 - Model of Product Life Cycle Theory, from Kerin and Hartley, Marketing, 2021
 - use this to discuss models and theories.
 - Model of interior home layout
 - use this to discuss features of models.
- **PulsePoint:** Published research reveals many ways that businesses use research. You might use such research findings to discuss a current phase of the research process or a current issue.
 - **34... The percent of employees who never consider what their bosses, clients, or colleagues think before posting to a blog, discussion forum, or social network.**
 - In an environment where social media communication can make or break a firm's reputation, this statistic reveals the need to have employee policies related to social media. You might use this finding to stimulate a discussion on how organizations might use research to develop such policies and how research might track employee compliance.
- **Industry Thought Leadership:** Use these quotes to discuss a current issue related to the chapter.
 - **“As big data increases, we see a parallel growth in the need for ‘small data’ to answer the questions it raises.”**

**William C. Pink, senior partner
Creative Analytics**

 - The above quote relates to the difference between data analytics and research. It's the perfect opportunity to discuss the importance of each and the pitfalls of relying on only one:
 - **“Research is creating new knowledge.”**

Neil Armstrong, Engineer and Astronaut

 - The above quote relates to the importance of discovery for its own sake, but also discovery for a purpose. Anyone who saw the movie Hidden Figures (2016) can understand the importance of applying established tools in new ways to new data, and using the perspectives of new individuals to the race for space exploration. The engineers of NASA were attempting something that had not been done before—a real dilemma—and needed not only visionary leadership but new hypotheses to accomplish this.

- “Forward-thinking executives recognize that analytics may be the only true source of sustainable advantage since it empowers employees at all levels of an organization with information to help them make smarter decisions.”

Wayne Eckerson,
director of research, business applications and architecture group,
TechTarget

- The above quote deals with the emergence in key performance indicators to inform. You can use this quote to discuss the disadvantages facing organizations that do not invest in research and analytical benchmarking.
 - Source: Wayne Eckerson, “Big Data Analytics: Profiling the Use of Analytical Platforms in User Organizations,” TechTarget, September 2011, p. 10, accessed March 5, 2012 (http://docs.media.bitpipe.com/io_10x/io_103043/item_486870/Big%20Data%20AnalyticsMarkLogic.pdf).

- **Additional Discussion Opportunities: Cases (Written and Video)**

- You will find a description of each case in the Case Abstracts section of the textbook. Cases and case supplements, including discussion guides, are available in Connect or downloadable from www.mhhe.com/schindler14e. Cases appropriate for discussion of concepts in this chapter include the following.

• Campbell-Ewald R-E-S-P-E-C-T Spells Loyalty
• HeroBuilders.com
• Open Doors: Extending Hospitality to Travelers with Disabilities

- **Additional Discussion Opportunities: Exhibits**

- Show **Exhibit 1-4**. With recommendations from the students, complete the “Job Interest Construct” of the job redesign.
Terms to consider: Prior employment history; aptitude test results,
- Write several hypotheses that you have originated on the board; the topic is not important. Alternatively, have students propose some. Then compare each hypothesis against the checklist in **Exhibit 1-10** in order to determine if it is a strong hypothesis or a weak one. Some ideas below:
 - Chip makers who advertise will sell more packages than chip manufacturers who don’t advertise.
 - Employees who take on leadership roles in projects, advance faster than those who act only as a team member on projects.
 - Employees who maintain a healthy weight are more productive than those who are overweight.
 - Machines that are maintained quarterly generate fewer defects than those maintained annually.
 - Students who attend class will earn higher grades than those who don’t attend.

- **Additional Discussion Opportunities: Video/Film**

- **Hidden Figures** (2016), adapted from *Hidden Figures* by Margot Lee Shetterly, can be tied to numerous business research concepts. You can also tie what the characters in the movie are doing and how researchers do those same things today, only differently.
- **Money Ball** (2011), adapted from *Moneyball: The Art of Winning an Unfair Game* by Michael Lewis, discusses how a money-strapped manager of a the Oakland A’s professional baseball team built a world series championship team from talented, but undervalued players. They looked at

different variables, when choosing players, and built a team around a totally different hypothesis of championship.

- **Additional Discussion Opportunities: Web Exercises**
 - Nielsen revealed its best-liked TV ads and its methodology on the following site. Have students use **Exhibit 1-3** to discuss the methodology used to arrive at the Nielsen conclusions.
 - <https://www.marketingcharts.com/uncategorized-25514>

CHAPTER EXHIBITS LIST

Exhibit Number	Exhibit title
1-1	Where Business Collects Information
1-2	Some Sources of Business Intelligence
1-3	The Research Process
1-4	Constructs Composed of Concepts in a Job Redesign
1-5	Independent and Dependent Variables: Synonyms
1-6	A Summary of Variable Types
1-7	Relationships among Types of Variables
1-8	Why Didn't Sales Increase?
1-9	Why Is Tracy Nelson's Performance So Poor?
1-10	Checklist for Developing a Strong Hypothesis
1-11	Model of the Traditional Product Life Cycle Theory
<i>Notes an exhibit in the Research Process Series</i>	

CHAPTER LEARNING OBJECTIVES

After reading this chapter, students should understand...

- 1 The environment in which research decisions are made.
- 2 The language used by professional researchers.

KEY TERMS

Key terms are shown in **bold**, as they appear in the text, throughout the **Chapter Outline**.

business dashboard	hypothesis	scientific method
business research	causal hypothesis	strategic inflection points
concept	correlational hypothesis	theory
conceptual scheme	descriptive hypothesis	variable
construct	relational hypothesis	confounding variable (CFV)
data	induction	control variable (CV)
data blending	information	dependent variable (DV) (criterion variable)
data catalog	insights	extraneous variable (EV)
data-driven organization	management dilemma	independent variable (IV) (predictor variable)
data silo	model	intervening variable (IVV)
decision	operational definition	moderating variable (MV)
deduction	reasoning	

CHAPTER OUTLINE

BUSINESS ENVIRONMENT FOR DECISION MAKING

- Never been more important to learn and master the tools and processes of business research.
- For all industries, it’s a time of radical reinvention and innovation delivered at a breakneck pace.
- *KPMG’s CEO Outlook Survey* reveals that “the next 2-3 years will be more transformational than the last 50.”
 - ◆ Companies face choice: agility or irrelevance.
 - ◆ Being too slow can lead to obsolescence.
 - ◆ A firm’s success is dependent on improving its understanding of its customers, but that they must do so in an “ethical and protected way.”
- Firms face numerous strategic inflection points.
 - ◆ Andrew S. Grove, *Only the Paranoid Survive*.
 - ◆ A **strategic inflection point** is a “time in the life of a business when its fundamentals are about to change.”
 - ◆ It is a disruption that demands a response.
 - ◆ Disruptions often come from unexpected sources, not the typical competitors.
 - Kroger from Amazon; CBS and NBC from Netflix
 - ◆ Anticipating disruptions is critical
 - Rita McGrath, *Seeing Around Corners*
 - Must dislodge “certain taken for granted assumptions.”

PicProfile: Extended Reality (XR) Use in Business

Role of Data in Decision Making

- Managers make countless **decisions**—a judgement after thoughtful consideration.

- ◆ Management decisions are triggered by a **management dilemma**—a problem or opportunity that reflects the difference between a desired and actual condition.
- ◆ Management decisions are followed by actions, even if the action is to do nothing.
- ◆ Whether to collect information is a critical decision.
 - Businesses collect **data**—raw, unprocessed facts in the form of numbers, text, pictures, audio or video
 - Image: Football players
 - Example: NFL uses video of games, embeds chips in game equipment, capturing important metrics
 - **Exhibit 1-1** Where Business Collects Information
 - When data is processed it becomes **information**—accumulating and organizing it; applying rules of measurement, statistical summary, and testing; and developing data presentation to make its meaning clear.
 - Researchers generate **insights**—analyzing information in the context of a management dilemma and the business’s mission, goals, resources and culture.
 - We mine data when we use existing data when faced with new dilemmas
 - Example: Amazon book recommendations based on your and other customers past purchases.
- ◆ Businesses don’t always use the data they have effectively due to several factors
 - State of digital transition
 - Data silos
 - Data interpretation deficiencies

State of Digital Transition

- Moving from a paper-based data system to a digital data system is cumbersome, time-consuming, and costly.
 - ◆ Paper-based data, information and insights often ended in a binder on a shelf.
 - ◆ It couldn’t be easily aggregated or merged with other data.
 - ◆ A shift to digital storage doesn’t guarantee easier access to data or having the right information.

Data Silos

- Business data is often stored at the business unit level where decisions are made.
- This practice creates a **data silo**—a collection of data or information in an organization that is isolated from and not accessible by other parts of the organization.
 - ◆ Forrester Research estimates that between 60-73% of business data resides in data silos.
 - ◆ Data silos can be caused by company culture, competition between business units for finite resources, geographic location of business units, layers of management, differing staff skill levels, and software or hardware incompatibility.
 - ◆ Data silos encourage business units to collect and store duplicate data, generate higher costs, lead to data inconsistencies, create incompatible data, prevent managers from seeing the broader picture, from discovering trends, and can lead to missing time-sensitive opportunities.

- ◆ Data silos are a major hurdle to creating the desired gold standard of current business: a **data-driven organization**—where each decision in the business benefits from data in a consistent, organization-wide manner.

Data Interpretation Deficiencies

- Expansion of data beyond numbers, into video, audio, and text, has created a problem: finding people with the skills to interpret the vast quantity and new types of data.
 - ◆ A skills revolution is needed in business, KPMG study indicates between 40-60% of current employees need to be retrained.

Addressing the Challenges

- Replacing these customized business data infrastructures with a company-wide infrastructure is often not financially feasible.
 - ◆ Companies are prioritizing critical business functions and business units and employing infrastructure modification.
 - ◆ Companies are starting to embrace machine learning data catalogs to find, inventory, and use their vastly-distributed and diversely-designed data assets.
 - A **data catalog** creates and maintains an inventory of data assets through the discovery, description and organization of distributed data.
 - Data catalogs facilitate access to data by all types of organizational users (from IT-based data scientists to line-of-business managers) and permit the rating of data assets and the tracking of data asset use, critical to assessing data value.
- Businesses are implementing **business dashboards** to aggregate and visualize data and information from multiple sources, to provide access to KPIs
 - ◆ Business dashboards are digitally collected displays of historical trends as well as current-decision actionable data and information, related to KPIs

Businesses are getting better at **data blending**—combining data from separate data files into a new composite data file—and then querying that composite data file to help make decisions.
- Businesses are using short-term personnel contracts or freelance employees to access the skills of data scientists and researchers, as opposed to hiring permanent employees, while others are developing their own data-focused decision infrastructure through aggressive hiring and training and reeducation of current employees.

Is New Data Needed?

- Managers can and do make decisions without new data.
- Business Intelligence System provides ongoing information about events and trends in the technological, economic, political-legal, demographic, cultural/social, and competitive arenas.
 - ◆ **Exhibit 1-2** Some Sources of Business Intelligence
 - ◆ Decision scenario:
 - You're the manager of a full-service restaurant. You've experienced significant turnover in your waiter/waitress pool, and some customers have commented that the once-friendly atmosphere is changing. Is this a problem for which business research should be used? Where will you begin in trying to solve this problem?

SNAPSHOT: Analytics Under-Delivers Compared to its Hype

The Research Process

- Those who conduct research are expected to be information storytellers and insight providers.
- To glean useful insights, those who conduct research can't just be technically competent in research design and analysis. They are expected to have an understanding of how businesses and organizations work.
- Managers are expected to be conversant with research methodologies and tools, in order to extract full value from any research conducted.
- **Business research** is a systematic inquiry that provides information to make decisions.
 - ◆ More specifically, it is a process of planning, acquiring, analyzing, and disseminating relevant data, information, and insights to decision makers in ways that mobilize the organization to act in ways that maximize business performance.
 - ◆ Business research attempts to provide the why so that predictions can be made to deal with the speed of decision making in ever changing environments.
- Businesses are often missing the 'why' in this deep dive into historical data.
- Research is a multi-stage process:
 1. Clarify the Research Question
 2. Design the Research
 3. Collect & Prepare the Data
 4. Analyze & Interpret the Data
 5. Report Insights and Recommendations
- **Exhibit 1-3** models the sequence of the research process. Recycling, circumventing and skipping occur. Some steps are begun out of sequence, some are carried out simultaneously, and some may be omitted. The idea of a sequence is useful for developing a project and for keeping the project orderly as it unfolds. The research process begins with understanding the manager's problem--the management dilemma. In other situations, a controversy arises, a major commitment of resources is called for, or conditions in the environment signal the need for a decision.
 - ◆ In every chapter, we refer to this model as we discuss each step in the process.
 - ◆ **Exhibit 1-3** is an important organizing tool because it provides a framework for introducing how each process module is designed, connected to other modules, and then executed.
- Multiple types of projects can be labeled "business research."

SNAPSHOT: The Importance of Why: Big versus Small Data

Research and the Scientific Method

- The essential tenets of **scientific method** are:
 - ◆ Clearly defined concepts, constructs, variables, methods, and procedures.
 - ◆ Empirically testable hypotheses: a way exists to gather evidence that directly supports/refutes any hypothesis.
 - ◆ Direct observation of phenomena (facts).
 - ◆ Conclusions drawn from statistical evidence rather than inferred justification (educated guesses).
 - ◆ The self-correcting process: ability to replicate and reassess validity of conclusions.

SNAPSHOT: Research on Cyber Security

THE LANGUAGE OF RESEARCH

- To understand or conduct research, you need to use concepts, constructs, operational definitions, variables, hypotheses.
- The success of research hinges on (1) how clearly we conceptualize and (2) how well others understand the concepts we use.

Concepts

- A **concept** is a generally accepted collection of meanings or characteristics associated with certain events, objects, conditions, situations, or behaviors.
- Concepts...
 - ◆ are created when we classify and categorize events, objects, conditions, situations, or behaviors—identify common characteristics beyond any single observation.
 - ◆ are acquired through personal experience or the experience of others.
 - ◆ use words as labels to designate them; these words are derived from our experiences.
 - ◆ have progressive levels of abstraction
- The success of research hinges on
 1. how clearly we conceptualize
 2. how well others understand the concepts we use
- We devise measurement scales using concepts by which to test hypotheses.
- We gather and analyze data using measurement concepts.
- Example: Movie Ticket
- Most concepts used in research are ordinary; but when we need to label less ordinary ones, we borrow from non-business fields or other languages.
 - ◆ Example: Household Income

Constructs

- A **construct** is an abstract idea specifically invented for a given research and/or theory-building purpose.
- We build or make up constructs.
- **Exhibit 1-4** Constructs Composed of Concepts in a Job Redesign shows How Heather, an HR analyst at CadSoft uses concepts and constructs.
- A **conceptual scheme** depicts the relationships among all variables of interest.

Operational Definitions

- Confusion about the meaning of constructs or concepts can destroy a research study's value.
- Researchers use operational definitions rather than dictionary definitions.
- An **operational definition** is a definition stated in terms of specific criteria for measurement or testing.
- Decision scenario: using a student's class year in research

PicProfile: National Youth Tobacco Survey

Variables

- A **variable** is a measurable symbol of an event, act, characteristic, trait, or attribute.
- In practice, one or more variables are used as a substitute for a concept or construct.

Independent and Dependent Variables

- The **dependent variable (DV)** is of primary interest to the researcher and thus to his or her hypothesis; it is measured, predicted, or otherwise monitored and is expected to be affected by manipulation of an **independent variable (IV)**, another variable of primary interest.
- The assignment of the variable type (dependent vs. independent) depends on the hypothesis the researcher is studying.
- **Exhibit 1-5** Independent and Dependent Variables: Synonyms
- **Exhibit 1-6** A Summary of Variable Types
- **Exhibit 1-7** Relationships among Types of Variables, provides a detailed example using research on the effects of a 4-day working week on productivity

Moderating Variables

- A **moderating variable (MV)** is a second independent variable believed to have a *significant* contributory effect on the original IV–DV relationship.

Other Extraneous Variables

- **Extraneous** variables might conceivably affect a given relationship.
 - ◆ **Control variables (CV)** are extraneous variables that we measure to determine whether they influence our results,
 - ◆ **Confounding variables (CFVs)** may also have an effect, so we measure for them or group our results to study them.

Intervening Variables

- The **intervening variable (IVV)** is a factor that theoretically affects the DV but cannot be observed or has not been measured; its effect must be inferred from the effects of the independent and moderating variables on the observed phenomenon.

Hypotheses, Theories, and Models

Hypotheses

- Hypotheses, theories and models serve researchers in different ways but are related.
 - ◆ A **hypothesis** is an unsubstantiated assumption about the relationship between concepts and constructs; it drives the research.
 - ◆ A **theory** is comprised of data-tested, supported hypotheses; it is derived from research.
 - ◆ A **model** is a visualization of a theory; it is used for clarification and to enhance understanding.
- A hypothesis can be phrased as a declarative statement (descriptive) or a question about the relationship between two or more concepts or constructs that may be judged as true or false.
- Hypotheses are always conjecture and formulated for empirical testing/measurement.

Types of Hypotheses

- A **descriptive hypothesis** states the existence, size, form, or distribution of some concept/construct.
- A **relational hypothesis** describes a relationship between two concepts/constructs.
 - With **correlational hypotheses** the variables being studied occur together, but there is no assumption of causation.
 - With **causal hypotheses** one variable being studied is assumed to cause a specific effect on other variables studied.
 - Causal hypotheses not only predict the cause (cause means roughly to “help make happen) but also the effect.
 - In proposing or interpreting causal hypotheses, the researcher must consider the direction of influence.

Reasoning and Hypotheses

- **Reasoning**—gathering facts consistent with the problem, proposing and eliminating rival hypotheses, deducing outcomes, developing crucial empirical tests, and deriving the conclusion—is pivotal to much of the researcher’s success.
- Two types of reasoning are of great importance to research in forming and testing hypotheses: induction and deduction.

Induction

- In **induction** you start by drawing a conclusion from one or more particular facts or pieces of evidence.
- The inductive conclusion is an inferential leap beyond the evidence presented—that is, although one conclusion explains the fact of no sales increase, other conclusions also might explain the fact.
- Decision Scenario: Tracy Nelson’s sales performance
- Image and Caption: Skateboarding

Deduction

- **Deduction** is a form of reasoning that starts with one or more true premises and the conclusion flows from the premises given.
- For a deduction—the proof—to be correct and sound, it must be both true and valid: Premises (reasons) given for the conclusion must agree with the real world (true).
- The conclusion must necessarily follow from the premises (valid).
- Decision Scenario: Sara’s ethics

Combining Induction and Deduction

- John Dewey’s “double movement of reflective thought: Induction occurs when we observe a fact and ask, “Why is this?” In answer to this question, we advance a tentative explanation (hypothesis). The hypothesis is plausible if it explains the fact (event or condition) that prompted the question. Deduction is the process by which we test whether the hypothesis is capable of explaining the fact.
- Decision Scenario: Effect of promotion on sales
- **Exhibit 1-8** Why Didn’t Sales Increase
- **Exhibit 1-9** Why is Tracy Nelson’s Performance So Poor

What is A Strong Hypothesis?

- Three conditions must be fulfilled:
 - Adequate for its purpose.
 - Testable.
 - Better than its rivals.
- **Exhibit 1-10** Checklist for Developing a Strong Hypothesis

Theories

- A **theory** is an empirically-supported description of the relationships between concepts, constructs, and hypotheses that are advanced to explain or predict phenomena.
- A theory, therefore, is comprised of data-tested, supported hypotheses; it is derived from research.
- To the degree that our theories are sound (empirically supported) and fit the situation, we are successful in our explanations and predictions.
- Example: Product Lifecycle Theory

Models

- A **model**, therefore, is a representation of a theory or system that is constructed to study some aspect of that system or the system as a whole.
- A research model's purpose is to increase our understanding, prediction, and control of the complexities of the environment.
- **Exhibit 1-11** Model of the Traditional Product Life Cycle Theory

ANSWERS TO REVIEW AND DISCUSSION QUESTIONS

Terms in Review

1. Define...

a. business research

Business research, as it is used in this text, is a systematic inquiry that provides information to guide managerial decisions. More specifically, it is a process of planning, acquiring, analyzing, and disseminating relevant data, information, and insights to decision makers in ways that mobilize the organization to take actions that maximize business performance.

b. data silo

a collection of data or information in an organization that is isolated from and not accessible by other parts of the organization; its often collected and stored within a business unit, using proprietary software and protocols of that business unit, making the data incompatible with other data in the organization.

c. strategic inflection point

A “time in the life of a business when its fundamentals are about to change.” Inflections points are a disruptions, often from an unexpected source rather than an expected competitor, that demands a response.

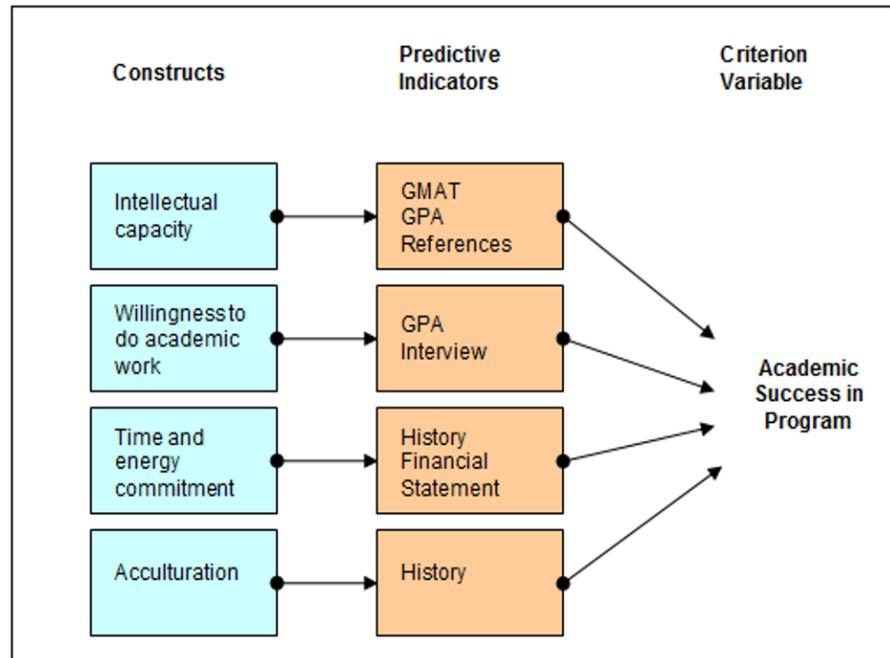
2. Distinguish among the following sets of items, and suggest the significance of each in a research context:

- Data, information, and insights**—Data is raw, unprocessed facts; information is processed data, usually aggregated and summarized; and insight is an interpretation of the information in light of the organization's mission, goals, resources, and environment.
- Concept and construct**—Concepts and constructs are both abstractions, the former from our perceptions of reality and the latter from some invention that we have made. A concept is a bundle of meanings or characteristics associated with certain objects, events, situations and the like. Constructs are images or ideas developed specifically for theory building or research purposes. Constructs tend to be more abstract and complex than concepts. Both are critical to thinking and research processes since one can think only in terms of meanings we have adopted. Precision in

concept and constructs is particularly important in research since we usually attempt to measure meaning in some way.

- c. **Deduction and induction**—Both deduction and induction are basic forms of reasoning. While we may emphasize one over the other from time to time, both are necessary for research thinking. Deduction is reasoning from generalizations to specifics that flow logically from the generalizations. If the generalizations are true and the deductive form valid, the conclusions must also be true. Induction is reasoning from specific instances or observations to some generalization that is purported to explain the instances. The specific instances are evidence and the conclusion is an inference that may be true.
- d. **Operational definition and dictionary definition**—dictionary definitions are those used in most general discourse to describe the nature of concepts through word reference to other familiar concepts, preferably at a lower abstraction level. Operational definitions are established for the purposes of precision in measurement. With them we attempt to classify concepts or conditions unambiguously and use them in measurement. Operational definitions are essential for effective research, while dictionary definitions are more useful for general discourse purposes.
- d. **Concept and variable**—Concepts are meanings abstracted from our observations; they classify or categorize objects or events that have common characteristics beyond a single observation (see a). One or more variables substitute for a concept or construct; values are assigned to the variable so it can be measured and any hypotheses based on them can be empirically tested. In informal usage, a variable is often used as a synonym for construct or property being studied.
- f. **Hypothesis and Theory**—A hypothesis is a conjecture about a relationship between two or more concepts/constructs that is configured for empirical testing/measurement. A theory is a data-supported hypothesis; it is no longer conjecture. Hypotheses drive research; theories are derived from the results of research. While a theory can be derived from a single research project, we will have more faith in the accuracy of a theory if the results of multiple research projects confirm the theoretical conclusion.

You may want to extend this topic by asking students to develop a theory. For example, construct a theory that will explain the differences in academic success that various students achieve in a B-school:



3 Describe the characteristics of the scientific method.

The scientific method emphasizes (1) direct observation of phenomena, (2) clearly defined variables, methods, and procedures, (3) empirically testable hypotheses, (4) the ability to rule out rival hypotheses, (4) statistical rather than linguistic justification of conclusions, and (6) the self-correcting process.

4 Below are some terms commonly found in a management setting. Are they concepts or constructs? Give two different operational definitions for each.**a Employee morale.** (construct)

1. Degree of mental satisfaction among employees as represented by their score on the XYZ morale inventory.
2. Mental satisfaction measured as an equally weighted self-report on seven point scales:
Mental satisfaction at home: Excellent (1) Average (4) Poor (7)
Mental satisfaction at work: Excellent (1) Average (4) Poor (7)

b Assembly line. (concept)

1. An assembly line is any work arrangement that meets the following tests:
 - ◆ The work consists of performing specific tasks in a fixed sequence of successive workstations.
 - ◆ The work at a given station is repetitive.
 - ◆ Materials upon which work is performed moved through the sequence to various workstations rather than machines or workers moving to the material.
2. An assembly line is any process on the production floor of building A where the process leads to a gross value addition to the product.

c Overdue account. (construct)

1. All accounts receivable that remain unpaid by the 5th day after the invoice date.
2. All accounts receivable that remain unpaid after the due date of payment, as applicable, based on terms of credit allowed to the vendor.

d Leadership. (construct)

1. An act of leadership shall be recorded when any member of the small groups under observation is:
 1. Recognized by group members as their leader by their submission to his/her assignments to specific roles in one of the exercises, or
 2. Agrees to his/her suggestion as to how to proceed in making assignments.
2. The degree of leadership embodied in a manager would be measured by:
 1. The number of executives of rank K, and above, reporting to the executive directly or indirectly
 2. The increase in the number of executives of rank K and above, reporting to the manager directly or indirectly, over the last three years

In keeping with management perceptions of weight to be assigned to various factors, (1) could be assigned a weight of 60% and (2) 40%, leading to an index of leadership. Personnel may be ranked on this basis.

e Ethical standards. (construct)

- ◆ Norms or standards for our behavior and relationships with others, that go beyond known legal standards or where legal standards do not exist.

- ◆ Norms or standards that assure that no one is harmed or suffers known or anticipated adverse consequences from a decision.

5 In your company’s management development program, there was a heated discussion between some people who claimed, “Theory is impractical and thus no good,” and others who claimed, “Good theory is the most practical approach to problems.” What position would you take and why?

Student answers will vary. Sample answer:

The statement that “theory is impractical and thus no good” illustrates a misconception of the true meaning of theory. The second quotation is more to the point: there is nothing so practical as a good theory (Kurt Lewin) because of the power it gives us to explain and predict the target phenomenon.

We use theory constantly as we explain why certain events occur or why one procedure succeeds and another does not. Theory represents an identification of key causal relationships, which explain outcomes in a variety of situations. It is an effort to extract the essence of relationships, ignoring less important contextual factors. The adequacy of a theory comes from its capacity to explain phenomenon in a variety of contexts and situations and this is referred to as its capacity to “travel.” Often, theories are too simplistic, and therefore lack explanatory power across situations. The solution lies in improving the theory, possibly introducing more variables, rather than rejecting the central concept.

6 Chipotle Mexican Grill continues to suffer from perception issues after a string of outbreaks including E.coli worried customers about the safety of eating at the fast casual chain. Their strategy for getting customers back into their restaurants was to give away free tacos, burritos and chips. And while their customer survey scores are improving, they are still operating at a loss. What concepts and constructs, and operations definitions, should any future research deal with?

Concepts/Constructs of interest

- Safe Food (construct)...food that will not make you sick
- Perception of Safe Food...whether a Chipotle customer expects to get sick from food prepared in the restaurant.
- Safe food preparation environment (construct)...specific government-approved procedures in place (refrigeration, employee cleanliness, grill cleaning, food delivery, etc.) to ensure safe food
- Fast casual chain (construct)...a group of restaurants that does not offer full table service, but promises higher quality food by using few frozen or processed ingredients during food preparation.
- Customer satisfaction score (construct) ...on a survey, a 9 or 10 on a ten-point scale asking whether Chipotle exceeded the customer’s expectations.

Making Research Decisions

7 You observe the following condition: “Our female sales representatives have lower customer defections than do our male sales representatives.”

a Propose the concepts and constructs you might use to study this phenomenon.

b How might any of these concepts and/or constructs be related to explanatory hypotheses?

There are a variety of answers to this question. One example might be:

- A. Concepts—sales representative, male, female
Constructs—customer defection.
- B. Female sales representatives who are more culturally supported in establishing and maintaining relationships extend that personal behavior into the work place.

Lower customer defections = fewer current customers lost at time of contract renewal resulting in a smaller customer defection percentage.

Customer defection percentage = the number of customers who do not renew their contract during the measurement period divided by the total number of customers at the start of the measurement period.

- 8 You are the office manager of a large firm. Your company prides itself on its high-quality customer service. Lately complaints have surfaced that an increased number of incoming calls are being misrouted or dropped. Yesterday, when passing by the main reception area, you noticed the receptionist fiddling with his hearing aid. In the process, a call came in and would have gone unanswered if not for your intervention. This particular receptionist had earned an unsatisfactory review three months earlier for tardiness. Your inclination is to urge this 20-year employee to retire or to fire him, if retirement is rejected, but you know the individual is well liked and seen as a fixture in the company.**
- a Pose several hypotheses that might account for dropped or misrouted incoming calls.**
 - b Using the double movement of reflective thought, show how you would test these hypotheses.**

Hypothesis 1—Receptionist misdirects calls due to his inability to correctly hear the problem as stated by the caller.

The above hypothesis is induced from the situation described in the problem. From the hypothesis we must be able to deduce some other factual conditions implied by this hypothesis. For example:

Fact 1—The complaints of misdirected calls only occur when the 20-year employee works the reception desk.

Fact 2—A fully hearing employee does not generate complaints of misdirected calls.

Fact 3—Employee has requested two sick days in the last 3 months for ear-related infections.

Hypothesis 2—A faulty switch causes the misrouted calls.

Fact 1—Switch A is tested by placing several sample calls and the calls are correctly routed.

Fact 2—Switch B is tested by placing several sample calls and the calls are misdirected.

From Concept to Practice

- 9 Using Exhibits 1-8 and 1-9 as your guides, graph the inductions and deductions in the following statements. If there are gaps, supply what is needed to make them complete arguments.**
- a Repeated studies indicate that economic conditions vary with—and lag 6 to 12 months behind—the changes in the national money supply. Therefore, we may conclude the money supply is the basic economic variable.**
 - b Research studies show that heavy smokers have a higher rate of lung cancer than do nonsmokers; therefore, heavy smoking causes lung cancer.**
 - c Show me a person who goes to church regularly, and I will show you a reliable worker.**
- A.
 1. If money supply is the basic economic variable, then economic condition changes will parallel it with a lag.
 2. Economic condition variations lag money supply by 6-12 months.
 3. Therefore, money supply is the basic economic variable. (Induction)
 - B.
 1. If smoking causes lung cancer, heavy smokers will have a higher lung cancer rate than non-smokers.
 2. Heavy smokers do have a higher lung cancer rate.
 3. Heavy smoking causes lung cancer. (Induction)

- C. 1. If a person goes to church regularly, this person is a reliable worker.
 2. “Bob” goes to church regularly.
 3. “Bob” is a reliable worker. (Deduction)

Note: There is a valid deduction from the major premise (1). The truth of the major and minor premises may be challenged: church attendance and reliability in the workplace must be unequivocally connected and “Bob” must be a person, not my dog.

From the Headlines

- 10 A- list actress Sandra Bullock and comedienne Ellen DeGeneres filed law suits today in LA Superior Court against John Doe #1 through #100. They are fighting back against businesses using their names, images, likenesses and personals to endorse fraudulent and non-existent products. If you were to design research to track this problem, what concepts, constructs, and operational definitions should any future research deal with?**

This can be a good student collaboration exercise, as you need to get beyond the obvious dictionary definition and to what you might be able to measure. Remind students we aren’t looking for a legal definition, but rather one we could use in a research study of celebrity use for fraudulent endorsement of products/services. If you assign this exercise ahead of time, you might ask them to think of/bring in examples of ads they have seen using celebrities where they were surprised that particular celebrity might endorse that particular product or service.

Use the class as a whole to come up with the list of concepts and constructs, then divide the class into working groups and assign each one of the concepts/constructs to generate the operational definition. Here is one possible set.

- **Concepts:** name, image
- **Constructs:** unauthorized use of image, likeness, personals, fraudulent product, non-existent product, endorse.
- **Operational Definitions:**
 - **unauthorized use:** use of any personal identifier without the celebrity’s contractual consent.
 - **name:** their legal name; their full professional stage name and any of its variations, as used throughout their career; a representation or abbreviation of their name or username, as used in conjunction with their image (e.g., on a social media account); an email address incorporating their name (either real or fraudulent); signature or facsimile of their signature (real or fraudulent).
 - **image:** photograph; video; still frame extracted from video; drawing; animation; digitally modified likeness, in character/role or not.
 - **endorse/endorsement:** direct or implied suggestion—written, audio, or video—that the celebrity is providing support of any kind for a product or service for which she is not under contract.
 - **fraudulent product:** product or service that does not perform as promised; product or service that does not resemble the product/service ordered; product or service where money paid will not be refunded, when the product/service is unacceptable to the purchaser.
 - **non-existent product:** product or service that cannot be supplied/fulfilled when ordered.
 - **personals:** image or likeness—photograph, art, video—of someone closely associated with the celebrity (e.g., child, spouse, pet); creative output of or well-known possession of celebrity (e.g., home, art, home furnishings, fashion items, car, books or recordings, personal care items)
- **Example**

- e.g., During 2020 Democratic political primary, Mike Bloomberg used 7-8 year -old footage of former president Obama in some of his media ads. At first glance, it appeared to be a direct endorsement, as it wasn't obvious you were viewing archival footage. Without Obama's express permission, this would be both an unauthorized use of his image and an implied endorsement.

ADDITIONAL DISCUSSION OPPORTUNITIES FROM PRIOR EDITIONS

Additional Discussion Questions:

Investment manager Bernard Madoff's hedge fund Ascot Partners was a giant scam will likely be the finance story remembered from the last decade. It is estimated that Madoff stole an estimated \$50 billion from noteworthy individuals and institutional investors, and he covered the crime by creating fictional financial statements for each investor. If you were an institutional investor, how might employing the tenants of scientific method have protected your organization from this Ponzi scheme?

This question is designed to generate a brainstorming session in class of what types of research are possible within the area of finance. Students may quickly come up with such ideas as studying, in detail, the financial statements provided by Ascot Partners, comparing these statements against the returns of other investment statements received by the institutional investor. If you ask your students to dig deeper, they may come up with doing a search on the companies on which the hedge fund was invested. It is reported that the statements provided, which it is reported were falsified, contained some companies that didn't exist and, for those that did exist, returns that were far out of line with the industry's performance. Doing some research on the specific industries in which the hedge fund was invested might also have given the institutional investor some protection. Some students may raise the issue that institutional investors hire firms like Ascot Partners to provide the expertise in researching companies and investing that the institutional investor does not have. That is a good time to discuss if the buyer of research has any obligation to insure that the research company it hires has the expertise and skill needed to do the research desired. It is also reported that Madoff's fund falsified reports provided to substantiate the statements provided. Thus, Madoff actually falsified research.

An automobile manufacturer observes the demand for its brand increasing as per capita income increases. Sales increases also follow low interest rates, which ease credit conditions. Buyer purchase behavior is seen to be dependent on age and gender. Other factors influencing sales appear to fluctuate almost randomly (competitor advertising, competitor dealer discounts, introductions of new competitive models).

- a If sales and per capita income are positively related, classify all variables as dependent, independent, moderating, extraneous, or intervening.**

One scheme for assessing the variables:

Car Sales (DV)	Buyer gender - EV
Per Capita Income (IV)	Competitor advertising - MV
Ease of credit access (EV)	Competitor dealer discounts - MV
low interest rates - MV	Introduction of competitor models - MV
Buyer age - EV	

Car Sales (DV) will increase as per capita income increases (IV), as long as low interest (IVV) increase ease of access to credit among younger (EV) men (EV) and competitors do not introduce more attractive models (EV), increase advertising (EV), or increase their discounts (EV).

b Comment on the utility of a model based on the hypothesis.

Given that buyer behavior is fickle with respect to ego-involved purchases (e.g. car), and given the number of uncontrollable extraneous variables, a model based on the above theory is unlikely to be relevant for any about of time.

ADDITIONAL DISCUSSION OPPORTUNITIES FROM PRIOR EDITIONS

Referenced URLs may have changed as some companies have merged and/or are renamed.

**Identifying and Defining Constructs**

When you read in the business press or attend a business presentation, you are exposed to many constructs. If you don't struggle to define these, you miss out on a lot of what the article is telling you. Let's see how good you are at spotting these.

During the most recent *Ad Age Digital Conference*, in a panel discussion on major issues advertisers and marketers know they have but aren't ready to confront—the elephants in the room—Lou Paskalis, senior vice president of enterprise media at Bank of America shared, “We're optimizing advertising and people want storytelling. People are ad blocking because they don't like what we are doing.” What are the constructs in this statement? What might be the operational definition of these constructs? What is(are) the management problem(s) confronting advertisers and their agencies?

The panel also revealed there are challenges beyond digital advertising's oft-cited viewability, ad blocking, and transparency (which refers to kickbacks and rebates from media to advertising

agencies). “The [industry trade associations] can't agree on what transparency is and, clearly, they are not speaking the same language. And that leads to a lack of trust,” shared Ron Amram, vice president of media at Heineken USA. What are the constructs and operational definitions for these constructs? What is the management problem(s) confronting advertisers and advertising media?

Paskalis also shared, “We need to go back to what [the advertising] business is about. We need to ask, ‘Is this compelling?’ Clients need to step up and pay full value for things that are great, but we need to stop commoditizing everything.” What are the constructs and the operational definitions for these constructs? What is the management problem revealed for advertisers and advertising agencies?

Source: George Slefo, “Digital Conference: Marketers Chime in on Elephants in the Room, Known and Unknown,” *Ad Age*, April 05, 2016, downloaded April 6, 2016 (http://adage.com/article/special-report-digital-conference/marketers-chime-elephants-digital/303413/?utm_source=daily_email&utm_medium=newsletter&utm_campaign=adage&ttl=1460499287).

- **Snapshot: Identifying and Defining Concepts**... Using presentations from professional business conferences to show the importance of understanding the language of research.

What are the constructs and the operational definitions for those constructs?*First Paragraph*

In the first paragraph of the snapshot, the students should identify the following constructs: advertising optimization, advertising storytelling, ad blocking

- Advertising optimization might refer to number of people responding to a digital ad by clicking on the ad, or the sales resulting from the delivery of the correct digital advertising content to the customer most likely to respond.
- Advertising storytelling might refer to the use of an advertising story—either complete or installments—to deliver the advertiser's message.
- Ad blocking might refer to the use by a potential customer of apps or permissions to block the delivery of an ad. But does it refer to ads never delivered or ads that are blocked after a few seconds.

Some management problems students might offer include: Increased ad blocking, and lower levels of ad optimization. You should encourage students to phrase these as undesirable management

results rather than the customer action itself or the industry phrase for the action. Some examples of what student’s might offer using this different perspective:

- Lower levels of ad recall due to failure to see ads caused by the use of non-storytelling advertising techniques.
- Lower levels of ad recall due to failure to see ads caused by customer ad blocking.
- Lower prospect-to-customer conversion due to lower levels of ad follow-through (clicks on ads or web-site visits).
- Lower sales due to lower levels of ad follow-through (clicks on ads or web-site visits).
- Failure to change prospective prospect’s brand image or brand perception based on lower levels of ad delivery.

Second Paragraph

In the second paragraph of the snapshot, the students should identify several additional of constructs: digital ad viewability, transparency, trade association, trust.

- Viewability might be how many prospective customers view a digital ad (Google distinguishes the difference between a digital ad that is served verses one that is viewed; The Media Ratings Council just adopted the following as an operational definition of a viewable ad: “50% of an ads pixels are on screen for a minimum of 1 second.”
 - You can see the Google study at "The Importance of Being Seen: Viewability Insights for Digital marketers and Publishers," Google, Novebmbler 2014, downloaded April 6,2016 https://think.storage.googleapis.com/docs/the-importance-of-being-seen_study.pdf.
 - Also, Google offers an example of a research infographic at: “Five Factors of Display Viewability” Google, November 2014, downloaded April 6, 2016 (<https://www.thinkwithgoogle.com/infographics/5-factors-of-viewability.html>).
- Ad transparency might refer to where an advertiser’s dollars are spent, but this general observation isn’t sufficient as an operational definition. Transparency is often divided into two types. One is called *financial transparency* (how much of an advertiser’s budget is spent by an advertising agency on media buys, data, technology or account service). But transparency also relates to *operational transparency* (where an ad is served and which metrics an ad optimization algorithm uses).
- Trade associations usually refer to professional groups founded and funded by businesses that operate in a specific industry. It’s important that the student operational definition specify that such groups define and set industry standards, perform public relations activities on behalf of the industry and their members, and do governmental lobbying. Students might see this as a concept rather than a construct; discourage them. As each trade association has its own mission and they very widely. Ron Amram, VP-media at Heineken USA, was referring to the American Association of Advertising Agencies (4As) and American National Advertisers, both powerful trade associations representing their very different groups.
- Trust is a belief that someone or something is reliable and truthful. But that doesn’t go far enough for an operational definition. How would you measure someone/something’s reliability? Truthfulness is the absence of lies. But how do you determine what is a lie? Someone will check Wikipedia and find “a statement that is known or intended by its source to be misleading, inaccurate, or false.” But as an operational definition, it doesn’t give you keys or clues to look for that are measurable. Someone could say ‘inaccuracy’ is determined by perspective. And truth or falsehood is also a matter of the factors considered. Generating the answers to these questions should lead to a lively discussion.

Third Paragraph

The key constructs students should identify are compelling advertising, commoditization in advertising, great advertising, and full value.

- Compelling advertising might refer to advertising that evokes an emotional response from its audience. But it might equally be advertising that gains attention, wins admiration or an industry award. Any emotional response is not okay; an operational definition spells out the acceptable emotional response. Any attention is not okay; the operational definition should spell out the level of attention and from whom. Any award is not okay; the operational definition should spell out what award.
- Commoditization might refer to advertising that is like every other advertising for the product class. So while we can generate commoditized ads for less, as they follow a formula, they usually fall victim to confusing the customer. For example, how many car ads have you seen that show a red car driving through a city street while heads turn. You lose the ability to distinguish the brand of car, let alone the message that brand is trying to deliver. Coming up with the operational definition of what is a commoditized ad—one that uses the same creative strategy as another ad in the same product class—might help, but only if the student could define ‘creative strategy’ and ‘product class’.
- Great advertising might refer to advertising that achieves its response or sales goals or be advertising that wins a Super Bowl ad competition or advertising that wins a Clio Award. Remind students that they have to have a consistent way to measure ‘great’.
- Full value might refer to what the advertising agency should be paid based on the worth of the ad based on its goal achievement, distinctive and memorable production values, creativity or something else. Full value is a price based on creativity and its success, as opposed to some standard fee—for example 15% of media buy dollars. Determining the factors that will be included in the calculation of the value is the exercise for the operational definition.

What is the management problem revealed for advertisers and advertising agencies?

The most important management problems are “How does the advertising agency regain the advertiser’s trust?” and “How do advertisers and their agencies keep customers from blocking ads?”



Radio Chips versus Retinal Scans: Which Theory Offers the Best Protection?

When the first confirmed case of bovine spongiform encephalopathy (BSE—known as “mad cow” disease) was discovered in a Washington state dairy cow in December 2003, numerous countries banned U.S. beef imports, bringing the \$3.2 billion export industry to a standstill. That year, the U.S. Department of Agriculture (USDA) performed random tests on approximately 0.03 percent of all slaughtered cattle, about 20,000 cows of the nearly 40 million head of cattle slaughtered annually. In comparison, western European countries tested 10 million cows and Japan tested each of its 1.2 million slaughtered cows.

Theories are essential to a researcher’s quest to explain and predict phenomena while creating business opportunities and informing public policy. One USDA theory is that the best way to identify sources of cattle-borne disease is to monitor a cow from birth to slaughter. Thus, the USDA wanted a national livestock database. After evaluating the options, the USDA proposed another theory: Cows tagged with radio frequency identification devices (RFID) would create the most accurate database.

About the size of a quarter, the RFID tag is stapled to the base of the animal’s ear. It is programmed with a numeric code that is scanned by a stationary or handheld device when a cow reaches a new location in the production process. As cows move from farm to feeding lot to slaughterhouse, each animal’s origin and location can be updated in the national database.

But RFID tags can be damaged, dislodged, or tampered with. Slaughterhouses need additional safeguards to be

certain these devices don’t end up in the meat. “All you need is one chip in someone’s burger and you’ve got a problem,” says Brian Bolton, vice president of marketing for Optibrand. This Colorado company offers a different theory for the best identification and tracking: A camera that records the unique vascular patterns in a cow’s retina at each stage of the beef production chain is the most reliable. With retinal scanning, Bolton says, “the tracking technology is contained in the handheld reader. It takes a tiny picture of a cow’s retina and then links it to that animal’s computerized record.” Meatpacker Swift & Co., the nation’s third-largest beef processor, has been using Optibrand’s devices for several years. Retinal scan wands also read RFID tags, access global positioning receivers, and stamp each scan with a location record. However, retinal scanning is not always practical because scans must be taken about an inch from an animal’s eye.

In addition to RFID and retinal scanning, beef producers and processors implement other tracking systems, thus implementing their own theories. Some use implantable computer chips and others use DNA matching systems. While still preferring RFID technology, the USDA’s director of national animal identification, John F. Wiemers, concedes, “We think there’s room for all these technologies.”

Which tracking theory do you favor? What are the most important variables you would consider in justifying your decision?

www.usda.gov; www.optibrand.com; www.jbsswift.com

- **Snapshot: Radio Chips versus Retinal Scans**...Using the tracking of cows and the mad-cow disease scare to understand theory

Which tracking theory do you favor? What are the most important variables you would consider in justifying your decision?

Mercedes-Benz and TNS Infratest Develop Stars Insight

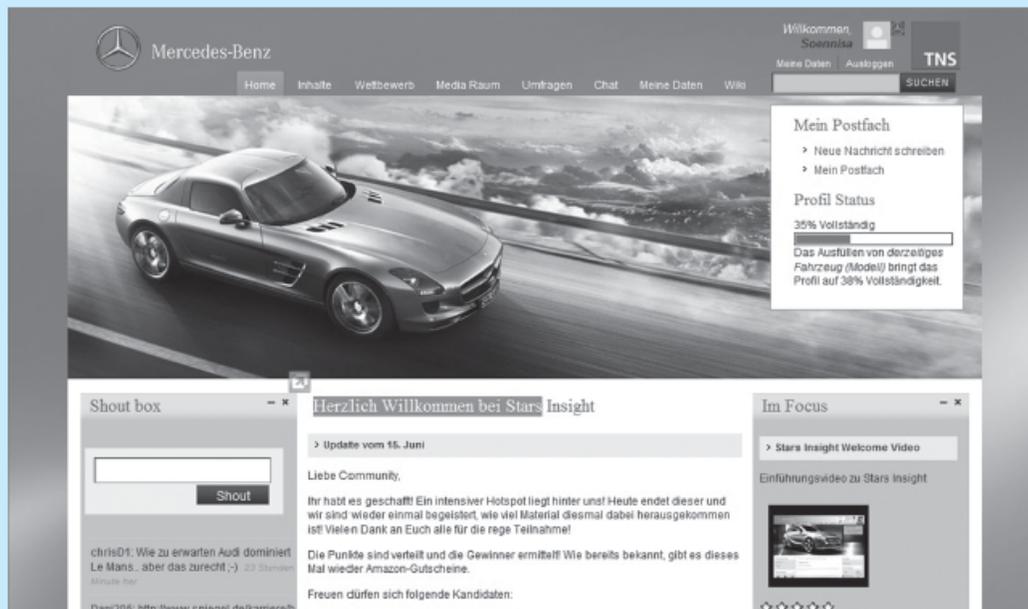
Stars Insight is an online research collaboration between Mercedes-Benz (MB) and TNS Infratest (TNS). "The original purpose of Stars Insight is capturing insights on needs, values, and attitudes of the important 20- to 45-year-old compact car driver," shared Christian Bauer, MP/MR customer insights for Daimler AG. The insights would be used to craft marketing initiatives.

TNS drew upon the strengths of Web 2.0 to deliver several key research assets: neutrality of moderation, researcher objectivity, data quality, and respondent anonymity while still allowing MB to narrow its focus to a particular target group of compact car owners. "Through a series of methods—including data from the recruiting screening process, statements from member's profile pages, surveys (both preplanned and instantaneous), online discussions, participant blog posts, and hotspot creative competitions between community members—TNS is able to provide data that helps MB in several ways. Data create a picture of what a modern brand should be, identify future distribution channels, craft authentic target group communication measures by testing advertising, develop the ideal configuration of the desired automobile, identify target group purchase intention criteria, identify the price expectations in the compact-car segment, and understand modern mobility concepts," explained Sandra Klaunzler, senior consultant automotive, TNS Infratest.

Interactivity is the hallmark of Stars Insight. For example, a "hotspot" is a period of 2–3 weeks where the community members deal with one specific topic—for example, what are appropriate ways to target young customers who might not yet drive or want to buy a Mercedes," shared Kai Blask, associate director automotive for TNS Infratest. "Within the hotspot we assign the community members one specific task. For example, develop a communication strategy for the market launch of model XY. The respondents work on this either alone or in groups. All participants upload their concepts to the community on a specific date." Member uploads are usually high-quality Word, PowerPoint, or other digital files. "Afterwards, all other community members can evaluate the ideas and give 1 to 5 points for each idea, explained Blask. "The member's idea with the best evaluations wins a specific prize or extra points," as well as significant attention from Mercedes-Benz.

Overall MB has 1,700 members in Stars Insight. Sixty percent of the members own a compact car (not a Mercedes-Benz) and 40 percent own a Mercedes-Benz (no matter what model/segment). TNS won the 2011 Best Study award from the German Association for Marketing and Social Research for the development of the Mercedes-Benz process. It leveraged Acquia Commons social business software to build the award-winning Mercedes-Benz social community website.

www.mercedes-benz.com; www.stars-insight.com;
www.tns-infratest.com; www.acquia.com



Pattern Thinking at Yum! Brands

When PepsiCo spun off its restaurant division into a separate corporation, Yum! Brands, Inc., some might have thought that the removal of the struggling restaurants from the more popular and successful snack foods was an end rather than a beginning. But David Novak, saw an opportunity to learn from the best.

“To take advantage of our unique position of being a brand-new public company made up of well-established brands, we did a best-practice tour of some of the most successful companies around at the time in order to take inspiration from them and borrow any good ideas we could find. We visited seven companies in all—GE, Walmart, Home Depot, Southwest Airlines, Target, Coke, and UPS—and then came back and crystallized what we’d learned.”

Yum! combined observation with individual depth interviews to gain insights—patterns—that could be used in the restaurant division. Novak employed a technique he coined as *pattern thinking*.

Pattern thinking is “where you look at what’s working for someone else and apply it to your own situation.” The technique generated more than incremental improvements, it helped Yum! take a giant leap forward. Using this approach he and his team identified five Dynasty Drivers for Yum! Brands. “These were the things that we believed would make us an enduringly great company and included: A Company Where Everyone Makes a Difference; Customer and Sales Mania; Competitive Brand Differentiation; Continuity in People and Process; and Consistency in Results.”

Novak identified a valuable lesson for researchers. “Pattern thinking requires that you keep your eyes open and actively seek out new ideas wherever you can find them. And you won’t truly have your eyes open unless you have enough humility to admit that the best ideas aren’t always going to come from you.”

www.yum.com

Has Trust Trumped Privacy?

Since e-commerce rang up its first sale, privacy advocates have been telling business that privacy is an important issue among online browsers and purchasers. An early Harris Poll survey conducted for *BusinessWeek* showed more than one-third of U.S. adults would be uncomfortable with their online actions being profiled, while 82 percent would be uncomfortable with online activities being merged with personally identifiable information such as income, driver’s license number, credit data, and medical status. The most recent TrustE Privacy Index showed “91 percent of U.S. online adults worry to some degree about their privacy online, while 53 percent said they ‘don’t completely trust companies with their business online.’” This continues to reflect work by researcher Alan Westin, president and publisher of *Privacy & American Business*, who identified three different groups related to privacy: *privacy fundamentalists* (who feel they have lost their privacy and fear

further erosion), *privacy pragmatists* (who are willing to share personal information when they understand the reasons for its use or see tangible benefits from sharing), and *privacy unconcerned* (those for whom privacy is not an overriding concern).

Even in the face of the inappropriate release of large private information data bases by government, financial institutions, and retailers entrusted with the information, this most recent study by Truste shows a narrowing of adults’ privacy concerns. Eighty-eight percent of U.S. adults avoid doing business with firms that don’t protect their personal information and 93 percent believe businesses have a responsibility to protect their privacy. That’s why you saw a rash of businesses updating and simplifying their privacy statements in 2012.

www.truste.org; www.harrisinteractive.com

Using Scientific Definitions to Shape Political Debate over BioMed

When politics trumps science in defining critical research terminology, legislators intentionally or unwittingly fail to communicate information accurately. This could be critical in discovering products for breakthrough cures, tracking the progression of diseases (thus affecting decisions about hospital staffing and insurance), and finding better ways to test new drugs to discover their various applications.

One example is The National Academies, which advises the federal government and public on scientific issues. It has “created voluntary guidelines for embryonic stem cell research.” These guidelines also “provide a comprehensive definition of terms that are accepted by every major research body in the U.S.” Because stem-cell research and human cloning are such volatile political issues, the federal government hasn’t proposed countrywide guidelines. As a result, individual states opportunistically exploit scientific terminology and fill the void with altered definitions that operationally join humans with embryos and add overarching definitions of human cloning.

Another example relates to the Kansas House of Representatives, which had two bills in process. One claimed “to define terms related to human cloning.” The companion bill sought to ban public funding for *somatic cell nuclear transfer* (SCNT), the bill’s term for creating cloned embryonic stem cells. Opponents of embryonic stem-cell research (who contend that embryos are human beings and wish to ban such research) found the definition credible. Citing “68 percent of Kansans support *somatic cell nuclear transfer*, there is also strong opposition to *reproductive cloning*.” Thus, by combining both techniques in the public’s mind in a single operational definition, opponents aim to ban SCNT.

Paul Terranova, vice chancellor for research at Kansas University Medical Center, is critical of the many scientific inaccuracies in the definitions used in both bills. When politics collide with science, should politics triumph?

www.kumc.edu; www.kslegislature.org

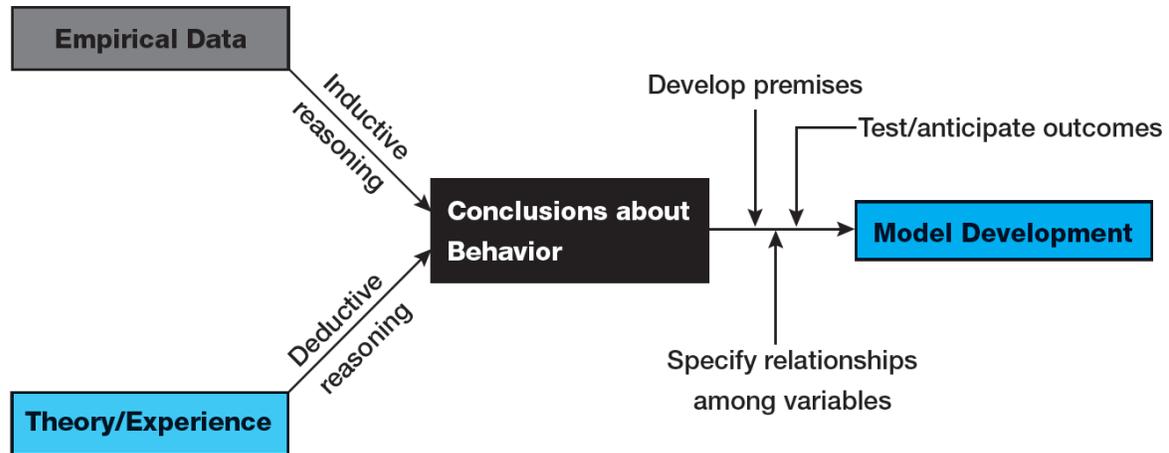
Prior Edition Images

One consequence of the financial crisis was multiple home foreclosures. In some neighborhoods, these abandoned properties have changed the very landscape of safety for residents and visitors alike. Methodologies that would require researchers to visit such neighborhoods would need to be carefully assessed. If a visit was deemed crucial to the research, significant safeguards would need to be in place.



Prior Edition Exhibits

The Role of Reasoning in Model Development



The Seven Basic Principles of the U.S. Safe Harbor Agreement

Companies that comply with this voluntary U.S. data privacy pact are granted immunity from legal action under the EU's data protection directive.

- **Notice.** Companies must notify consumers/participants about what information is being collected, how that information will be used, whom that information will be shared with, and how individuals can contact the organization with any inquiries or complaints.
- **Choice.** Consumers/participants must be provided with an opt-out mechanism for any secondary uses of data and for disclosures to third parties. For sensitive information, participants must opt in before providing data that will be shared.
- **Access.** Individuals must have access to personal information about themselves that an organization holds and be able to correct, amend, or delete that information where it is inaccurate, except where the burden or expense of providing access would be disproportionate to the risks to the individual's privacy.
- **Security.** Organizations must take reasonable precautions to protect personal information from loss, misuse, and unauthorized access, disclosure, alteration, and destruction.
- **Onward transfer.** Companies disclosing personal data to a third party must, with certain exceptions, adhere to the notice and choice principles. A third party must subscribe to the safe-harbor principles.
- **Data integrity.** Reasonable steps must be taken to ensure that data collected are reliable, accurate, complete, and current.
- **Enforcement.** Companies must ensure there are readily available and affordable independent mechanisms to investigate consumer complaints, obligations to remedy problems, procedures to verify compliance with safe-harbor principles, and sufficiently rigorous sanctions to ensure compliance.

Source: Diane Bowers, "Privacy and the Research Industry in the U.S.," *ESOMAR Research World*, no. 7, July–August 2001, pp. 8–9 (<http://www.esomar.nl/PDF/DataPrivacyUpdateUSA.pdf>); Lori Enos, "Microsoft to Sign EU Privacy Accord," *www.EcommerceTimes.com*, May 16, 2001 (<http://www.newsfactor.com/perl/story/9752.html>); U.S. Department of Commerce, "Safe Harbor Overview," accessed November 30, 2002 (http://www.export.gov/safeharbor/sh_overview.html).



A GEM of a Study

>Abstract

In periods of economic downturn, government leaders try to stimulate entrepreneurship activity. Project directors of the Global Entrepreneurship Monitor, partnered with the Kauffman Center for Entrepreneurial Leadership of Ewing Marion Kauffman Foundation, the London School of Business and Babson College, designed a research study to add insight to what activities would be most likely to stimulate entrepreneurship activities.

>The Scenario

What government policies and initiatives are most likely to generate high levels of entrepreneurial activity? Which are positively correlated with the economic well-being of a country as measured by growth in GDP and job formation? Project directors of the Global Entrepreneurship Monitor (GEM), who define entrepreneurship as “any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business,” suggest the following:

- Promoting entrepreneurship, especially outside the most active age group (25–44), with specific programs that support entrepreneurial activity.
- Facilitating the availability of resources to women to participate in the entrepreneurial process.
- Committing to long-term, substantial postsecondary education, including training programs designed to develop skills required to start a business.
- Emphasis on developing an individual’s capacity to recognize and pursue new opportunities.
- Developing the capacity of a society to accommodate the higher levels of income disparity associated with entrepreneurial activity.
- Creating a culture that validates and promotes entrepreneurship throughout society.

Researchers at the Kauffman Center for Entrepreneurial Leadership (Babson College) and the London Business School revealed these propositions based on a study designed to prove a causal relationship between factors that affect entrepreneurial opportunities and potential, to business dynamics and national economic growth and well-being.

>The Research

The research design compensated for lack of control of extraneous variables by using data from 10 nations “with diversity in framework conditions, entrepreneurial sectors, business dynamics, and economic growth.” The longitudinal study proposed to prove or disprove a new conceptual model of cultural, economic, physical, and political factors to predict economic growth (Exhibit C-GEM 1–1).

EXHIBIT C-GEM 1-1 Conceptual Model: The Entrepreneurial Sector and Economic Growth

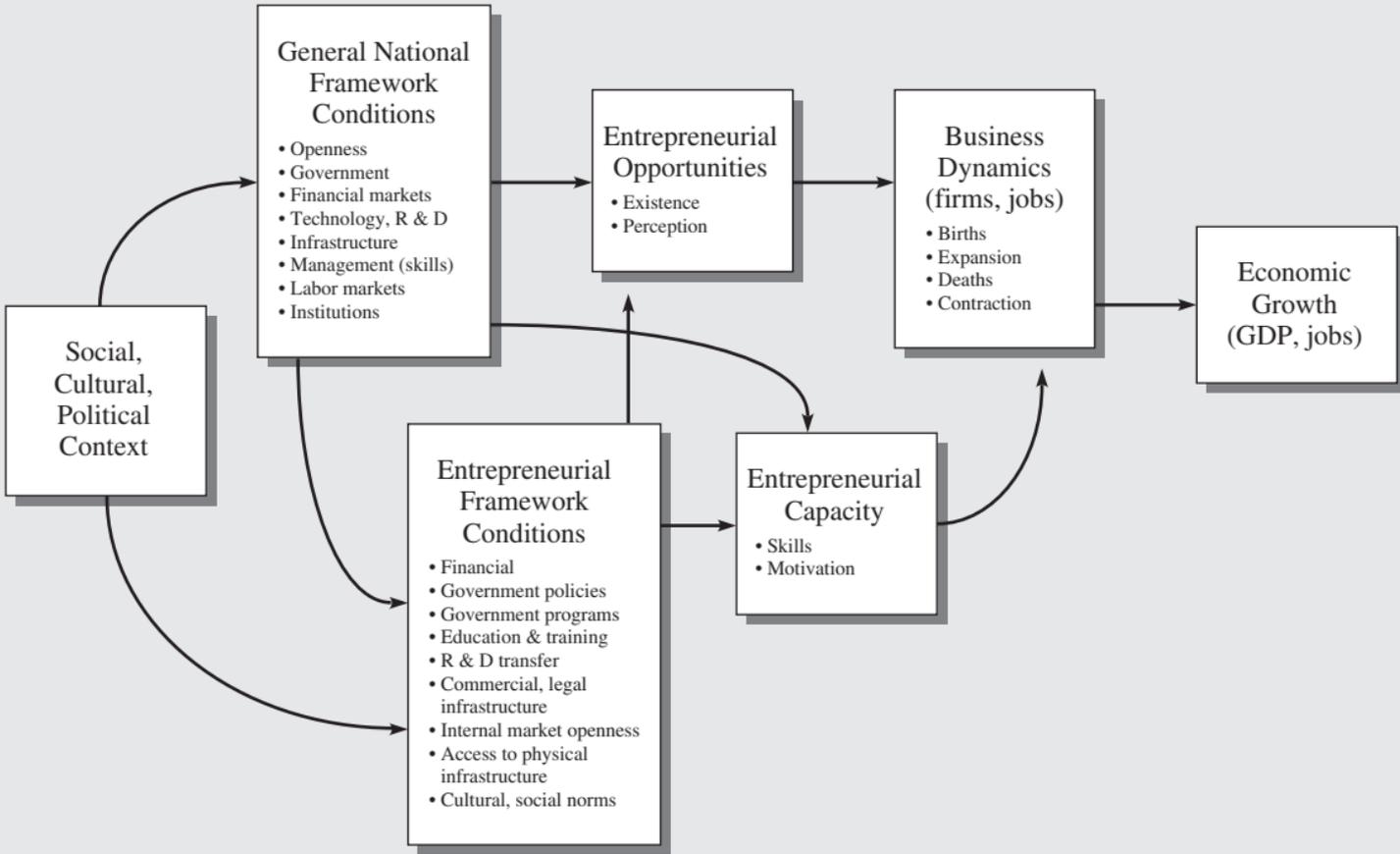


EXHIBIT C-GEM 1-2 Entrepreneurial Framework Conditions: Cross-National Comparisons of Key Informant Multi-Item Indexes



—■— U.S.	0.8	1.23	0.44	0.21	-0.46	0.8	0.88
—■— Canada	0.15	0.55	0	-0.12	-0.28	0.22	0.86
—■— Israel	0.34	-0.06	-0.97	0.29	-0.26	0.04	0.67
—■— U.K.	-0.07	0.17	-0.03	-0.02	-0.97	0.08	0.57
—■— Germany	-0.2	-0.22	-0.21	0.03	-1.24	0.15	0.29
—■— Denmark	-0.09	-0.3	-0.56	-0.12	-0.52	0.39	0.33
—■— France	-0.92	-1.01	-0.81	-0.23	-1.21	-0.1	-0.49
—■— Japan	-0.65	0.29	-0.52	-0.39	-1.06	-0.68	-0.61
—■— Finland	-0.36	-0.94	-0.33	-0.1	-0.94	-0.22	1.03
Correlation to Start-Up Rate	0.87	0.79	0.58	0.69	0.65	0.71	0.55



Various data collection methods were employed, including:

- Promoting entrepreneurship, especially outside the most active age group (25–44), with specific programs that support entrepreneurial activity.
- Current, nonstandardized data collected by each national research team.
- Two rounds of adult population surveys (1,000 randomly selected adults per country) to measure entrepreneurial activity and attitude, completed and coordinated by an international market survey firm by phone—or face-to-face in Japan. (Market Facts [Arlington, VA] did the first round of data collection in June 1998 [Canada, Finland, Germany, the United Kingdom, and the United States]. Audience Selection, Ltd. [London] conducted the second round in March 1999 from all 10 countries.)
- Hour-long personal interviews with 4 to 39 experts (key informants) in each country.
- Detailed 12-page questionnaire completed by each key informant.

The perception of opportunity (.79) and the two measures of entrepreneurial potential of the population—capacity (.64) and motivation (.93)—positively correlate with business start-up rates. And start-up rates positively correlate with growth in GDP (.60) and level of employment (.47).

While many cross-sectional measures still remain in this ongoing study, study directors claim, “The support for the conceptual model is encouraging, although clearly not conclusive. GEM provides a robust framework within which national governments can evolve a set of effective policies for enhancing entrepreneurship.”

>Discussion

1. What are the independent and dependent variables in this study?
2. What are some of the intervening, extraneous, and moderating variables that the study attempted to control with its 10-nation design?
3. Can you do a causal study without controlling intervening, extraneous, and moderating variables?
4. What is the impact on study results of using national experts (key informants) to identify and weigh entrepreneurial framework conditions?
5. Can you do a causal study when much of the primary data collected is descriptive opinion and ordinal or interval data?

>Sources

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