Professional Practice in IT
Info5990
Research Methods
+
Banking Case Study
Lecture 5

At the end of the lecture 60 Sec elevator Pitch to Jac

- What are you going to tell him about your business idea that he wants to invest in?

Guest Speaker Marc Portlock

Strategic Initiatives Executive - Technical Advisory Board at ACS
The role of ACS in the Australian I.T industry

Stand-up for other tutorial groups today on your group assignment

Before end of this lecture

Group project

- Solving real life problems
- Presenting a document that you can present to investors
- Understanding the market dynamics
- Create a valuable solution
- Creating markets
- **Ensure the solution is financially viable**

- **Need to ensure you are in groups.**

Objectives of this lecture

- Understand research methods
- Explore how to conduct professional research in business
- Understand where to obtain research material
- Write good research and communicate others
- Critique others research
- Give you an example / case study of a research project

Quick Update Quiz 1

- 60 minutes / 10 marks - ONE ATTEMPT

- Multiple choice

- 60 questions / 1 + minutes per question

- Open book / use your slides, only 1st 6 weeks lectures
  - questions to test your critical and analytical skills !

- 1 attempt to answer questions – otherwise it is too easy

- **Random questions – cannot work your mates answer !**

- *Open from October 4th@ 11.59pm till 11th October @ 11.59pm*

- Do it any time, but make sure you complete in 1 go

- Cannot have 280 students claiming internet was down - they get 0%.

- No extensions！- Don't just try to see if it is working !

- No reset's if you are not in lecture or have not read the instructions – students receive 0

Research - why

- **Why is it important for IT professionals ?**
- **Where would you use research techniques ?**

- Help make informed decisions
- Need to produce research in career
- Evaluating research in the media
- Assist in classes

Type of Research 1

Type	Purpose	Time frame	Degree of control	Examples
Experimental / Quantitative	Test for cause/ effect relationships	current	High	Comparing two types of treatments for anxiety.
Quasi-experi-mental	Test for cause/ effect relationships without full control	Current or past	Moderate to high	

Type of Research 2

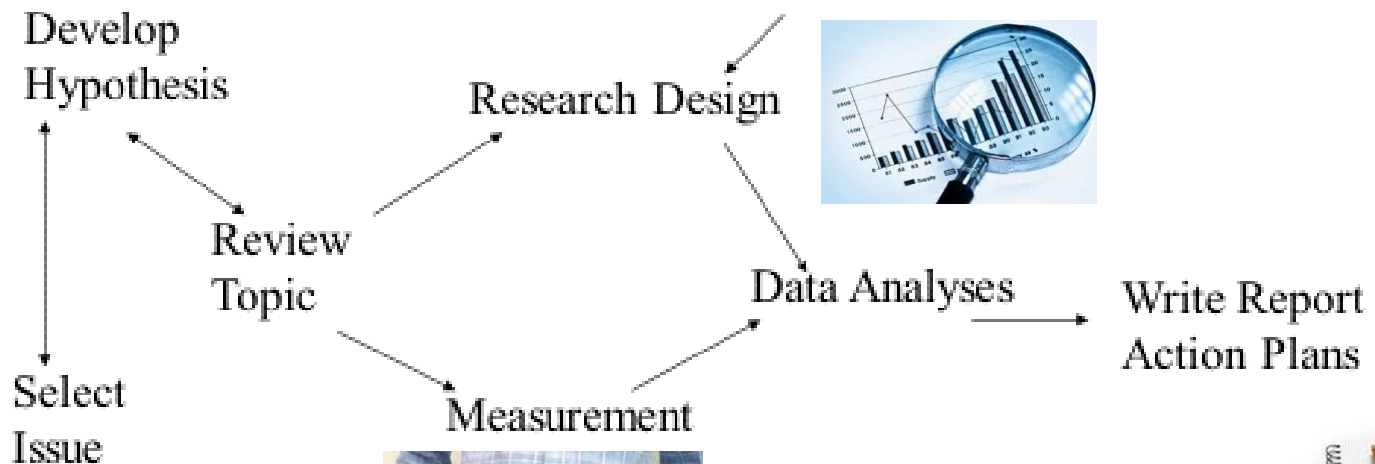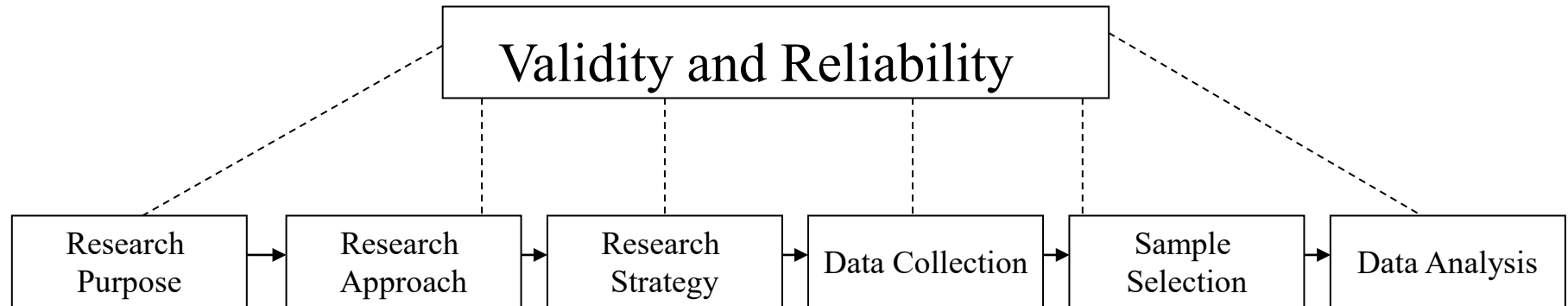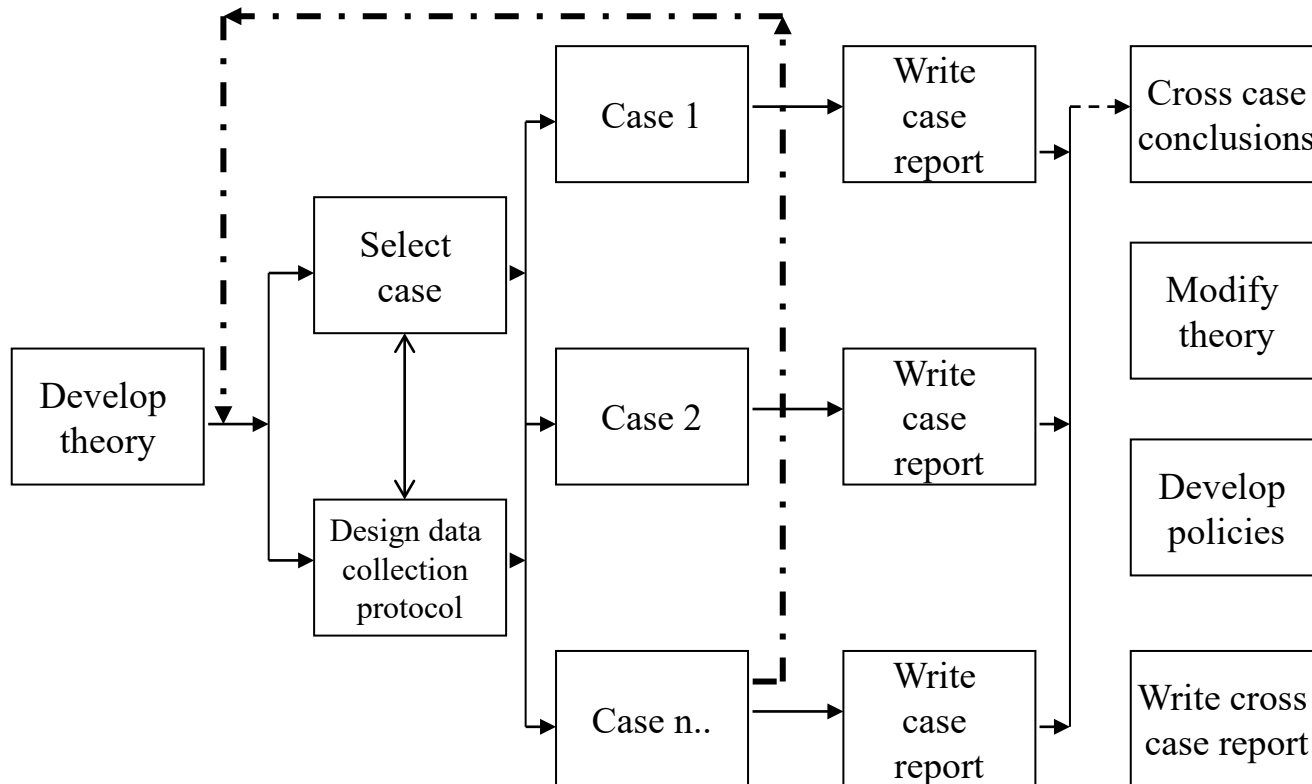| Type	Purpose	Time frame	Degree of control	Examples	
Survey	Assess opinions or characteristics that exist at a given time.	Current	None or low	Voting preferences before an election.	
Qualitative	Discover potential relationships; descriptive.	Past or current	None or Low	People's experiences of quitting smoking.	

The Research Process

Research Process

Ethics

Develop Hypothesis

Research Design

Review Topic

Data Analyses

Select Issue

Measurement

Write Report Action Plans

The Research Approach

Validity and Reliability

| Research Purpose | → | Research Approach | → | Research Strategy | → | Data Collection | → | Sample Selection | → | Data Analysis |

The Research Process – another way of looking at it

Define and Design   Prepare, collect,   Analyze and conclude

Example of a Research study

The same principles apply to a PhD, a business report, and essay, etc

Case Study to demonstrate research methods

Internet and mobile banking adoption

Is it disruptive or not ?
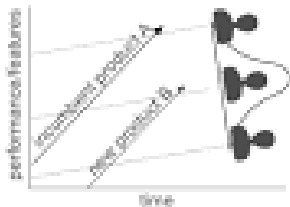## Lets take a poll

What is Disruption

"A disruptive innovation is... a product [or] service... that... is unattractive to the established leaders in an industry."
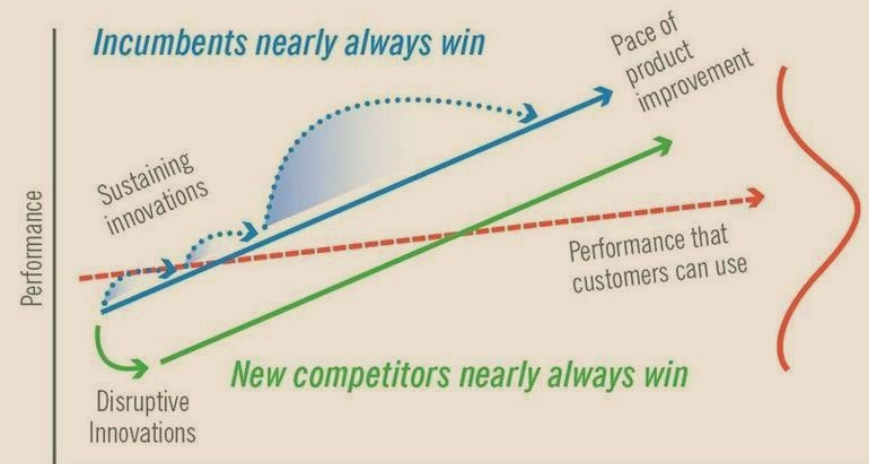
—Clayton Christensen

Source:wptavern.com

WHAT EVERYONE OUGHT TO KNOW ABOUT DISRUPTIVE INNOVATION

"A disruptive innovation is **not** a breakthrough innovation that makes good products a lot better."
- Clayton Christensen

Source:ignitionframework.com

Incumbents nearly always win

Pace of product improvement

Sustaining innovations

Performance that customers can use

New competitors nearly always win

Disruptive Innovations

Performance
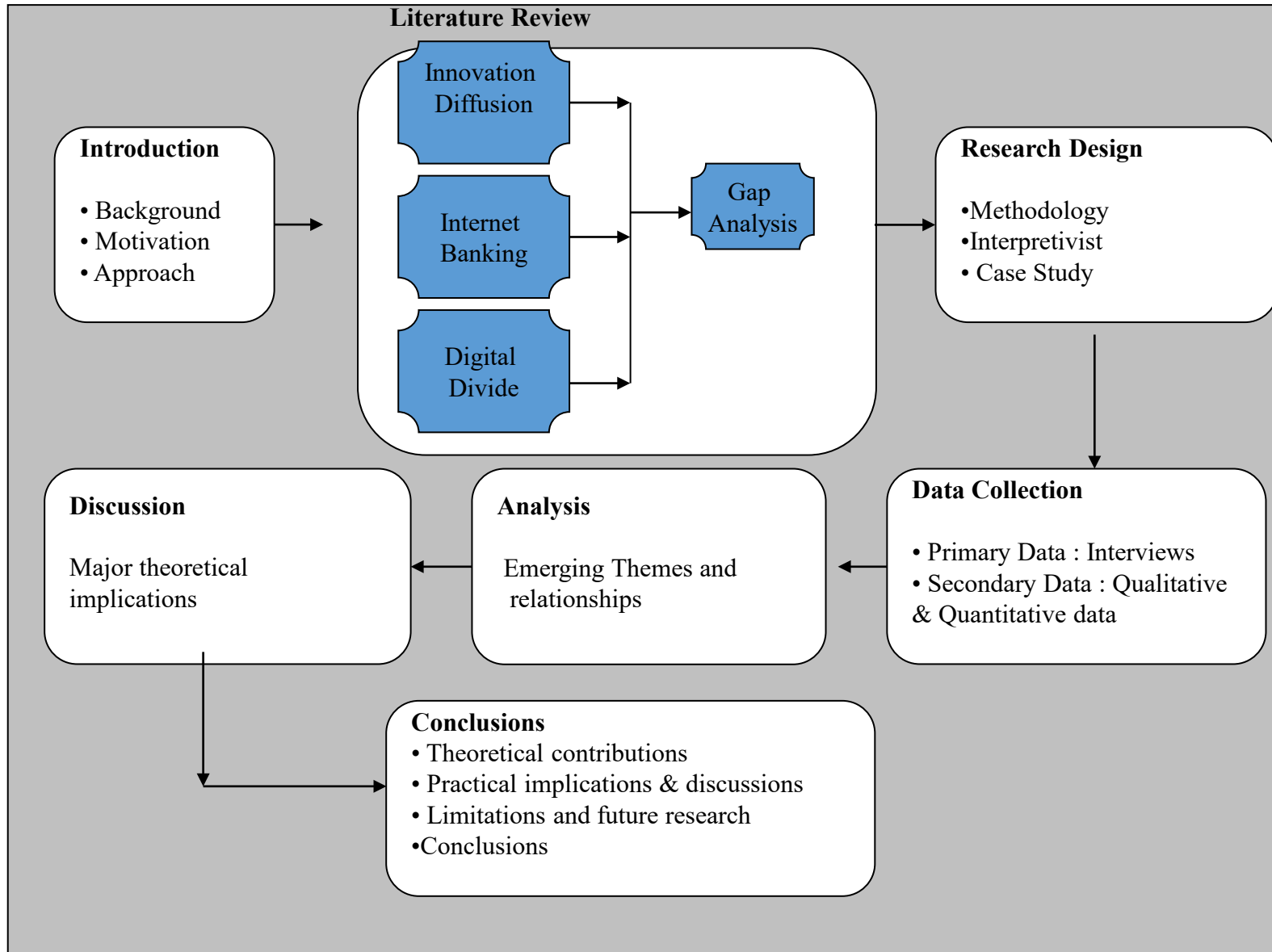
Source: Clayton Christensen, "The innovators Solution"

Source:claytonchristensen.com

My PhD Example – Innovation Adoption in 26 countries

Purpose of Research

- *Improve understanding of diffusion of disruptive Internet & Mobile Internet banking across different banks in different countries.*
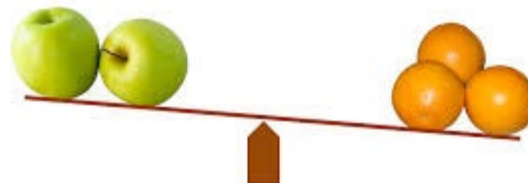
Fast Developing Countries

Developed Countries

compare

contrast

Understand

Expected Contributions

- **Theoretical contributions to research**
  - Improve the understanding diffusion of Internet banking across different countries

  - Providing support for Institutional Theory and Disruptive theory

- **Contribution to Practice**
  - Improve the understanding of disruption for business executives.

- **Contribution to Methodology**
  - To conduct a comparative industry cases in different countries and

Research Motivations – Ask Why ?

- Global diffusion differences between countries has highlighted vast differences in technology adoption between nations (Digital divide).

- **Diffusion of innovation across an industry is a relatively new phenomena**,

- Work by Christensen and Raynor (2003) on sustaining and disruption claims internet banking is sustaining

  - **Why are you doing your group assignments ?**

The Research Process Phases

Explore

Phase 1 →

| Literature review | Primary Data | New Literature | Gap in Literature |

Develop

Phase 2 →

| Research Qn. | Target Identification | Primary data design | Data collection |

Analyze

Phase 3 →

| Data synthesis | Data Theming | Analyze | Organize |

Write Up

Phase 4 →

| Establish Theoretical view | Answer Research Qn | Write up | Submit & Present |

Process - Literature Review

- **Internet banking - 1995 onwards (IS and Banking disciplines)**

  - Demonstrates why developed nations introduced Internet banking – cost saving, branch rationalisation, channel migration

- **Innovation literature (1903 onwards)**

  - Diffusion – explains adoption of new technologies / products
    - S-Curve
  - Institutional – explains diffusion of innovation across an industry
    - Adoption of Internet banking, online airline check in

- **Disruptive – explains diffusion of new products/technologies**
    - Sustaining – incremental innovation
    - Disruptive – new market Digital Divide - recent phenomena (1980-90) – explores differences & growing gap of technology adoption between developed & developing nations (REF)

Literature covers only basic and raw information

Develop - Research Question

1. *What are the drivers of Internet and mobile banking diffusion in developed and developing countries?*

2. *How do these drivers impact on diffusion of Internet and mobile banking?*
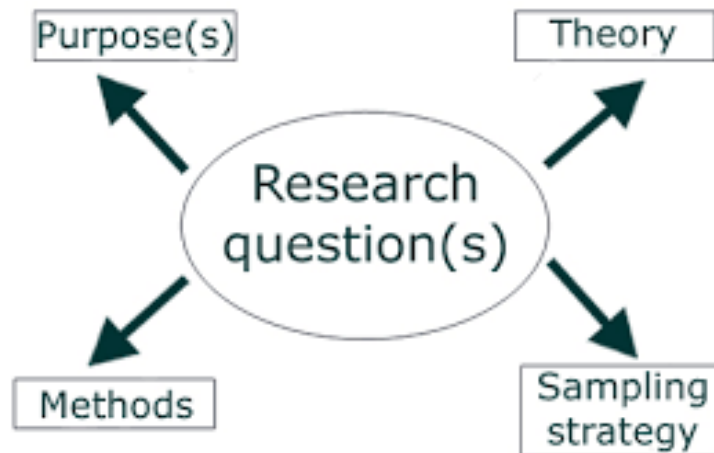
Robson (2000)

Research Design

Design	Activity
Method	Industry case study consisting of individual banks in different countries
Selection of countries and banks.	Developed – 9 banks (September 2006 – Jan 2007) Fast developing – 8 banks (September 2006) Availability and access to data. Interviews with bank CIO's, General Managers, Product Managers, Senior VP's
Data Collection	Interviews with bank executives Company documents, annual reports, analyst white papers Industry reports
Data Analysis	Open coding from primary data Thematic coding using Nvivo

Field research

KEY FINDINGS

Analyse - Preliminary Findings

Developed	Developing
Cost reduction	Cost reduction
Branch rationalization	Branch rationalization
Alternative channels	Alternative channels
Meeting customers demands	Meeting customers demands
Self service for customers	Self service for customers
Competitive edge	Competitive edge
Customer retention	Customer retention
Overseas experience of executives	Lack of core banking
	Infrastructure limitations – land lines
	Security limitations
	New emerging consumer class
	Mobile phone uptake
	Inability to build branch networks
	New customers (unbanked)
	Leapfrogging
	Mass new customer base

■ Similarities

■ Differences

What have I found ?

- Assessed **diffusion technology** and suitability to empirical evidence and in particular differences.

- Found that emergent data, e.g. – new customers were coming online, taking on services which did not exist before – reflecting Disruptive Innovation Technology.

- Theory explain why data was different – e.g. "Un-banked" – status, and "new economy"

- Started writing………

Results -1

That the first movers are often lonely, with the industry in skepticism:-

"Being first everybody had their eyes on you",

"We served as frontiers banks for the industry"

Results -2

Mobile banking was taking off as outlined below:

"It is a low ticket transaction, low volume. we are ready", Ind5

In Australia there was no demand- yet in developing countries it was taking off:

"Yes nobody wanted it. You know so my recollection is we killed the whole project at some point and not all that far end to it.", Aus4

Write up - Conclusions of study

1. Institutional Theory helps to understand industry diffusion of innovations, but has limitation,

2. These limitations were based on socio-economic factors.

3. Christensen's DIT helps to understand, but does not take into consideration the digital divide.

4. Contribution has been: Institutional theory has been used for the 1st time in a cross border manner to explain diffusion

5. DIT has for the first time been used in a comparative cross border study.

6. This study adds to the original thinking from Christensen that "Internet banking is sustaining", by providing that in developing countries it was probably more disruptive.

7. Finally – there were many similarities, but also major differences between banks in developing and developed countries

The fun part – writing !

It's like walking on glass !

3ʳᵈ Article on this topic

THE UNIVERSITY OF SYDNEY

DISRUPTIVE OR SUSTAINING? DEPENDS ON DEVELOPED OR DEVELOPING!

Dr Khimji Vaghjiani*

DOI:

ABSTRACT

The literature on Information Technology (IT) enabled innovation, like innovation literature more generally, has focused predominantly on work conducted in 'developed' countries. Historically this has been due to a lack of empirical evidence collected in 'developing' countries and access to comparable examples of innovation. This situation results in the application of developed world ideas to innovation in the developing world. Whether and how the adoption of IT-enabled innovation in developing countries differs from developed countries therefore remains an unexplored question (World Bank 2008). These findings bring into question the direct application in developing countries of innovation models and frameworks created through the study of innovations in developed countries, specifically of disruptive innovation. To explore this hypothesis the adoption of internet and mobile banking (IMB) in India and Australia are discussed. It was found that in India IMB satisfied an unmet customer
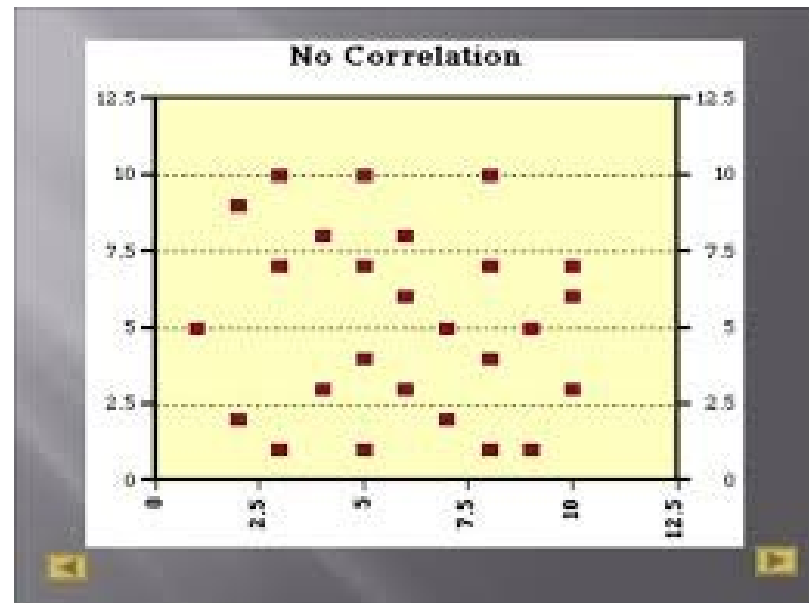
Other research methods - examples

Correlational Studies

- Type of descriptive research design
  - Advantage is that it can examine variables that cannot be experimentally manipulated (e.g., IQ and occupational status).
  - Disadvantage is that it cannot determine causality.
  - Third variable may account for the association.
  - Directionality unclear

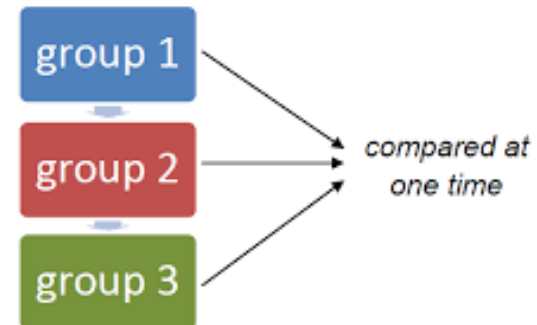Other Examples where this method could be used in IT ??

Cross-Sectional Study Designs

- Compares groups at one point in time
  - E.g., age groups, ethnic groups, disease groups.
- Advantage is that it is an efficient way to identify possible group differences because you can study them at one point in time.
- ➤Disadvantage is that you cannot rule out cohort effects.

Cross-Sectional Research Study:

different groups

group 1
group 2 → compared at one time
group 3

Other Examples where this method could be used in IT ??

Longitudinal Design

- Gathers data on a factor (e.g. confidence) over time.
- Advantage is that you can see the time course of the development or change in the variables
  - Confidence increasing with age.
  - Confidence increasing at a faster rate in the 30's than the 40's.
  - Confidence decreasing in the 50's and 60's.

Other Examples where this method could be used in IT ??

Survey Methods

- Interviews
  - Advantage - Comprehensive, ensure participant understands the question, minimizes missing data, enables clarification of unclear responses

  - Disadvantage – expensive, people more like to refuse participation, can be risky for interviewer, interviewer may bias the responses.

- Types of methods
  - Face-to-face interviews
    - Expensive and time-consuming
    - Telephone interviews
  - Need to use random-digit dialing to reach both listed and unlisted numbers.
  - Mail
    - Return rate is usually low (20-30%).

Other Examples where this method could be used in IT ??

Types of Questions

- Open-ended
  - E.g., Can you tell me about your typical experience with dating?
- Close-ended
  - E.g., How do you typically meet someone to date?
    - Introduced by someone
    - Social event
    - In university class or place of work
    - At a bar
    - Through sports or other athletic events

Sampling

- Population is everyone in your population of interest.
- Sample is some proportion of the population.
- Haphazard sampling – convenience sample
- Random sampling
    - There is always some degree of sampling error.

Qualitative Methods

- Multimethod approach to studying people in their natural environment
    - It is interpretive – researcher has to make sense of the data
    - Multimethod – can use interviews, photographs, natural observation, archives, etc.
    - It is typically conducted in person's natural environment.
- Valuable to use when phenomenon not fully defined.

Experimental Designs

- Examines differences between experimentally manipulated groups or variables (e.g., one group gets a certain drug and the other gets a placebo).
  - Advantage is that you can determine causality.
  - Disadvantage is cost and many variables cannot be experimentally manipulated (e.g., smoke exposure over time).

Experimental Method

- Advantages
  - Strength with which causal relationships can be inferred.
  - Ability to manipulate one or more variables.
  - Proven to be a very useful and robust scientific method (i.e., withstood the test of time).

- Disadvantages
  - Tight controls often produce artificial conditions that could limit the generalizability of the findings (i.e., internal vs. external validity trade-off).
  - Time consuming & Expensive.
  - Human behavior is very complex and cannot be fully studied using experimental methods.

Other Examples where this method could be used in IT ??

Research Example in I.T ?

Source: Depositphotos.com

Research for Your Case Study

Methods of Analysis (Types of Evidence)

- Documentation
- Interviews
- Direct Observation
- Participant Observation
- …and Others (Survey, Artifacts, etc.)
- Why multiple? …Triangulation

Time permitting
Ok – lets see what you learnt this week !

Class discussion on other Research and its application in IT

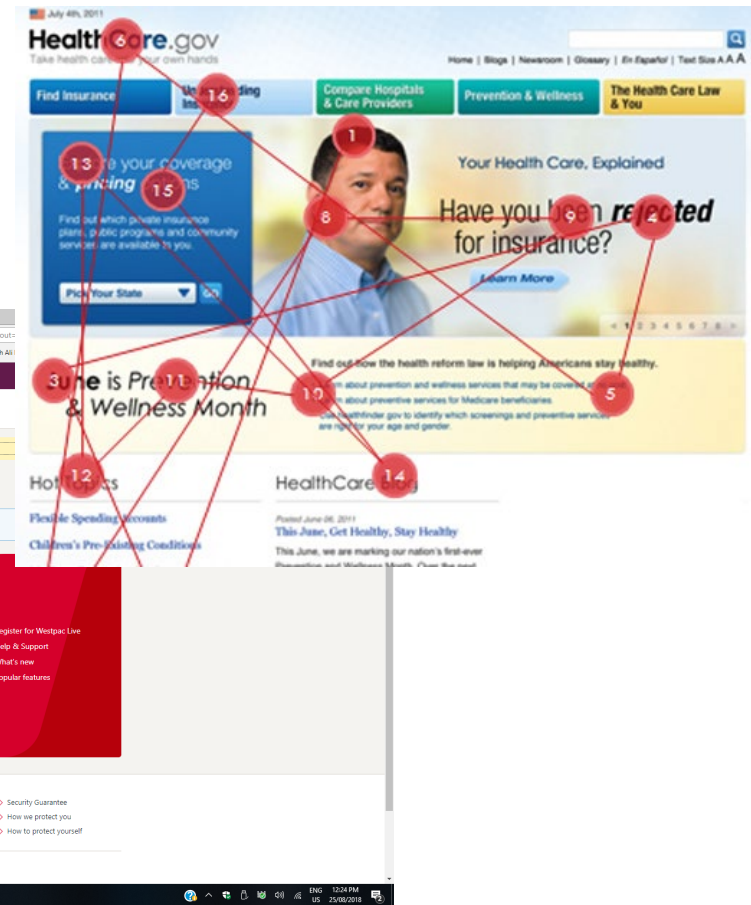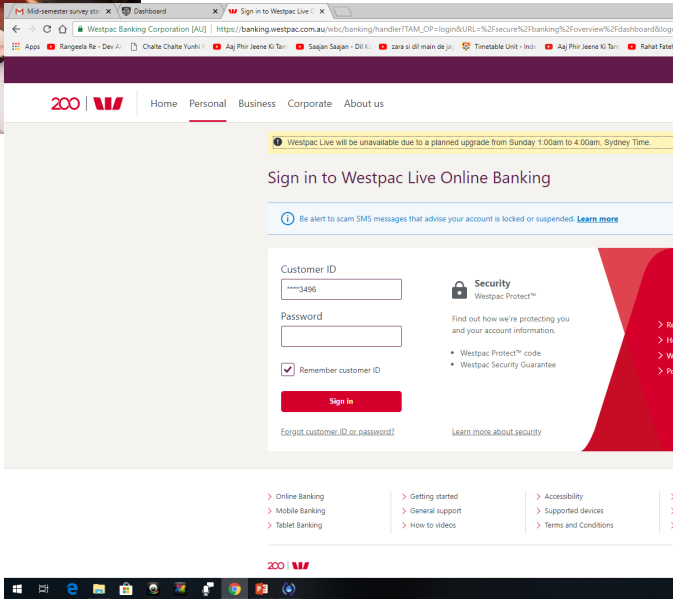# Other tutorial project overview 60 sec's Elevator pitch to Jack Ma

Source:thebalancsmb.com

Source:atlassian.com

Banking Case study : Placing of Internet banking website features
Mission Australia – example & benefits

Weekly readings

You are now on your own – difference between HD/D & others
You are all adults and can-do things on your own !

See you next week :
- Do the readings