Surveys

SWAL
Alexander Klimczak
& Lukas Mecke
Motivation

• To find out peoples opinions and interests asking each of them is oftentimes not possible

• Idea : Ask only some and try to generalize

→ Survey
Agenda

• Defining surveys
• Planning and designing surveys
• Analyzing surveys
• Surveys in IS
• Advantages and disadvantages
Defining surveys

“The Idea of a survey is that you will obtain the same kinds of data from a large group of people (or events) in a standardized and systematic way.

You then look for patterns in the data that you can generalize to a larger population than the group you targeted.”

~ Researching information systems and computing, Chapter 7
Why to conduct surveys

• Find out about needs, behaviours and opinions
• Learn about attitudes and reactions
• Determine client satisfaction
• Enhance credibility of research
When to conduct surveys

• When you need a quick and efficient source of information

• When you need well-founded, statistical information

• When the information is not yet available through other means
Approaches

• Case study surveys
• Sampled surveys
• Census surveys
Case study surveys

- Collect information from a small part of a group
- No aim to be generalizable
Sampled surveys

• Sample a representative group of members of your target population

• Generalize to predict the overall opinion

• Challenge: choose the sample wisely
Census surveys

- Collect information from **all** members of your target group
- Best accuracy amongst the approaches, but oftentimes not practicable
Planning and Designing surveys

Things to keep in mind:
• Data requirements
• Data generation method
• Distribution
• Sampling frame
• Sampling technique
• Response rate and Non-responses
• Sample size
Data requirements

• Data can be
  • Directly topic related
  • Indirectly topic related

• In most cases you have only one chance to obtain data, so think of
  • what data you need for your research question
  • how to analyze the data
  • if some possible outcomes require additional data
Data generation method

• Possible methods:
  • Questionnaire (most common)
  • Interview
  • Observations
  • Documents

• In general, only one method is used for a survey
Distribution

• Possible modes:
  • Direct mail
  • Interviews and phone surveys
  • Group administration
  • Internet
Distribution

• Direct mail
  • Address participants directly (no window envelopes)
  • Include a cover letter to explain your goals
  • Include a prepaid envelope
  • See also ‘Total Design Method’

• Interviews and phone surveys
  • Gives you the option to clarify ambiguity and ask for further details (not generalizable!)
  • Inapplicable for private matters
Distribution

• Group administration
  • Distribute during group or organization gatherings
  • Explain your agenda and thank for participation

• Internet
  • Cheap and quick to reach people all over the world
  • Collected data is already in digital form and can thus be easily processed
  • Distribute via email or website
Sampling frame

• Find out who has the answers to your questions

• Must include everyone relevant so that you don’t bias the outcome

• Possible sources:
  • Telephone directories
  • Member lists
  • Mailing lists
Sampling technique

• Decide which members of the sampling frame you want to obtain data from

• Two main approaches:
  • Probability sampling
    Samples are chosen because of their high probability to be representative
  • Non-probability sampling
    Samples are likely to have unique features and outcomes can normally not be generalized
## Sampling technique

### Overview over some techniques

<table>
<thead>
<tr>
<th>Probabilistic</th>
<th>Non-probabilistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random</td>
<td>Purposive</td>
</tr>
<tr>
<td>Systematic</td>
<td>Snowball</td>
</tr>
<tr>
<td>Stratified</td>
<td>Self-selection</td>
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<tr>
<td>Cluster</td>
<td>Convenience</td>
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</table>
Probability sampling

• Random sampling
  • Pick the sample truly random
  • Risk to get a non-representative sample

• Systematic sampling
  • Pick the first sample at random
  • From there on pick samples in constant intervals
Probability sampling

- Stratified sampling
  - Divide the population in “natural” strata
  - Choose samples in accordance with those layers
Probability sampling

• Clustered sampling
  • Interesting instances might occur together
  • Choose your sample from such clusters
    i.e. towns, schools, companies, bars
  • Trade off cost against representativeness
Non-probability sampling

• Purposive sampling
  • Researcher hand-picks samples
  • Samples are chosen for offering the most possible variety (even extreme cases)
Non-probability sampling

- Snowball sampling
  - Find a single person from your target group and obtain your data
  - Ask for suggestions about other relevant people
  - Especially valuable if you don’t get easy access to your target group
Non-probability sampling

- Self-selection sampling
  - Advertise your interest in a particular topic and collect data from anyone who responds
  - Good approach if you don’t have access to your target group but respondents might be biased

- Convenience Sampling
  - Simply pick the respondents most convenient
  - Basing your survey on convenience only is considered bad practice for research!
Response rate

• Response rates of 30% are quite good, rates of only 10% are not uncommon

• Try to get at least some data from non-responders

→ Find out if their non-responding is meaningful in its own right
Response rate

• To maximize your return rate think of:
  • How to get the results back
  • What method your target group might be most comfortable with
  • Designing your survey as personal as possible
  • Try to persuade people face-to-face
  • Give good explanation of your purpose and hopes
  • Keep it short
  • Increase the number of people of a certain group if you suspect them not to respond
  • Try to monitor the returns to be able to send polite(!) reminders
Sample size

• Decide about the size of your sample

• For small-scale research 30 responses are a good rule of thumb

• For larger projects the sample size depends on
  • Accuracy range
  • Confidence level
  • Size of the population
Sample size

• Accuracy range
  • Also called ‘margin’, ‘error’ or ‘confidence interval’
  • Tells how close to real population value the result is
  • Perfect accuracy would be +/-0%

• Confidence level
  • Tells how reliable the result is
  • Perfect confidence would be 100%
Sample size

- Researchers normally work on
  - +/-3% accuracy range
  - 95% confidence level

<table>
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<tr>
<th>Population</th>
<th>Sample size</th>
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<tr>
<td>50</td>
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<tr>
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<tr>
<td>100,000</td>
<td>1056</td>
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<tr>
<td>900,000</td>
<td>1066</td>
</tr>
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</table>

www.surveysystem.com/sscalc.htm
Analysing surveys

- Transfer your findings in a structured form, i.e. a table
- Calculate statistic metrics and look for patterns
- Write a short report about your findings (no more than one page)
- Get feedback
Surveys in IS

• user evaluation of systems

• investigate practices or views concerning some aspect of IS
“A Survey of User-Centered Design Practice”

The survey targeted attendees of the CHI 2000, being highly familiar with UCD. They were asked about the impact of UCD methods in practice and had to assess 5 commonly used UCD methods on their own experience.
Surveys in IS - Example 2

“Broken Display = Broken Interface? The Impact of Display Damage on Smartphone Interaction”
Advantages

• Generalized conclusions can be drawn
• Produce a lot of data for predictable and low cost and time
• Allows quantitative data analysis
• can be replicated and subjected to further testing
• suited to people who don’t have interpersonal communication skills
Disadvantages

- Lack of Depth
- Some aspects can’t be reduced to numbers and may be overlooked
- No ongoing processes and changes, only snapshot of that time
- Only show associations, no causalities
- Difficult to judge honesty and accuracies of people’s responses on postal, telephone or internet surveys
Take Away Message

• Ask yourself what you want to investigate with your survey
• Pick a matching survey method
• Use an adequate sampling frame
• Use a fitting sampling techniques
• Think about sampling size, accuracy range and confidence level
• Be polite and thankful!
Reference


• Oates, Briony J. Researching information systems and computing, Chapter 7 - Surveys. Sage, 2005.