INTRODUCTION TO INFORMATION SYSTEMS – METHODOLOGIES 2

Silvia Masiero

University of Oslo, Department of Informatics

silvima@ifi.uio.no

IN5210 Information Systems

Overview

- Recap: introduction to IS - theories
- Epistemologies: three paradigms in IS research
- Methodologies: IS qualitative research
- Methods: some practical suggestions
- Questions for discussion!

Previous lecture…

- IS: what sort of science is it?
- IS: research objects
- Main theories in IS research

“Which methodology should I go for?”

From the previous lecture…



Structuring elements of social research

(Crotty, 1998)

Structuring Elements of Social Research (Crotty, 1998)

- **Epistemology: our assumptions about knowledge and how it can be obtained**
- Theoretical perspective: the philosophical stance informing the methodology and providing context for the process and grounding its logic and criteria
- Methodology: the plan of action, process or design lying behind the choice and use of particular methods
- Methods: the techniques or procedures used to gather and analyse data

IS Epistemologies (from Myers, 1997)

- All research is based on some underlying assumptions about what constitutes valid knowledge and which research methods are appropriate.

- Epistemology specifies such assumptions and therefore, needs to be clarified before asking the questions on "which methodology" to use.

- Here we rely on Orlikowski & Baroudi (1991) who, following Chua (1986), propose three epistemological paradigms (sets of assumptions): **positivist**, **interpretive** and **critical**.

Positivist research

- Positivists generally assume that reality is **objectively given** and can be described by measurable properties, independent of the observer and his or her instruments.
- Positivist studies generally attempt to **test theory** to increase the predictive understanding of phenomena.
- Orlikowski and Baroudi (1991) classified IS research as positivist if there was evidence of **formal propositions**, **quantifiable measures** of variables, **hypothesis testing**, and the drawing of **inferences** about a phenomenon from the sample to a stated population.

Interpretive research

- Interpretive researchers start out with the assumption that access to reality (given or socially constructed) is only through **social constructions** such as language, consciousness and shared meanings.

- Interpretive studies generally attempt to understand phenomena through the **meanings** that people assign to them: “what we call our data are really our own constructions of other people’s constructions of what they and their compatriots are up to” (Geertz, 1973, cited in Walsham, 2006: 320).

- Associated to methodologies that allow researchers to access such interpretations, such as those described in this session (part 2 – methodologies).

Critical research

- Critical researchers assume that social reality is historically constituted and that it is produced and reproduced by people.

- Although people can consciously act to change their social and economic circumstances, critical researchers recognise that their ability to do so is constrained by forms of social, cultural and political **domination**.

- The core task of critical research is seen as being one of **theorisation** and **transformation**, where the restrictive and alienating conditions of the status quo are brought to light and challenged.

…a clear distinction?

To recap…

- To answer the question on “which methodology” to use in our research, we first need to clarify our assumptions on what constitutes valid **knowledge** and how it is produced
- Here we follow the IS field convention (Orlikowski & Baroudi, 1991) that identifies three main **epistemologies**: positivist, interpretive and critical
- Our choices in terms of methodology – and, flowing from it, the methods for data collection and analysis – will be developed in coherence with our epistemological views.

Methodologies: IS qualitative research

A key distinction… (from Myers, 1997)

- **Quantitative research** was originally developed in the natural sciences to study natural phenomena. Examples include survey methods, laboratory experiments, formal methods (e.g. econometrics) and numerical methods such as mathematical modeling.

- **Qualitative research** was developed in the social sciences to enable researchers to study social and cultural phenomena. Examples include action research, case study research, ethnography and grounded theory.

- In line with this course's contents, our focus today is primarily on **qualitative methodologies** for IS research.

Qualitative methodologies (from Myers, 1997)

We discuss four main methodologies for conducting qualitative research in IS:

- Action Research
- Case study
- Ethnography
- Grounded theory

Action research

- “Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework” (Rapoport, 1970, in Myers, 1997: 6)

- Action research: operates the concomitant processes of taking **action** on a certain object, and doing **research** on it.

- Two core assumptions of action research (Baskerville, 2000):
  - Social settings cannot be reduced for study,
  - Action brings understanding.

Action research in IS

Numerous works (from HISP UiO especially) illustrating the value of action research in the IS context!

Some examples:

- Braa, Monteiro & Sahay (2004) – presents action research interventions as one element in a larger **network of action** to ensure sustainability of the intervention

- Braa & Sahay (2012) – discuss the method of **participatory design**, noting its consequences on design, development, implementation and scaling of a digital platform (DHIS2) across the health systems of various developing countries

Case study research

- "The most common qualitative method used in information systems" (Orlikowski & Baroudi, 1991)

- Defined by Yin (2013) as an inquiry that:
  - Investigates a contemporary **phenomenon** within its real-life context, especially when
  - The **boundaries** between *phenomenon* and *context* are not clearly evident.

- Case studies can be positivist, interpretive or critical, depending on the assumptions made on the nature of knowledge (see part 1 of this lecture).

Ethnography

- *"One of the most in-depth research methods possible" (Myers, 1997)*

- Ethnographers immerse themselves in the **lives** of the people they study, seeking to place the phenomena studied in their social and cultural context
  - Normally requires a significant amount of **time** in the field, assuming the **perspective** of the studied subjects

- For example: Aanestad & Olaussen (2010) – show how ethnographic studies of work practices have been "the most important methodological approach" in research on ICT in the health sector, detailing its importance for the Scandinavian tradition of system development.

Grounded theory

- "A research method that seeks to develop theory that is grounded in data systematically gathered and analysed" (Myers, 1997)

- Widely seen in the IS community as the one method that best accommodates a positivist epistemology
  - Strong reliance on **coding** – developing codes from qualitative data and using them to arrive at theoretical categories (Strauss & Corbin, 1998)

- For example: Urquhart et al. (2010) – develop guidelines to build grounded theory up from IS research.

To recap…

We have discussed four main methodologies for conducting qualitative research in IS:

- Action Research
- Case study
- Ethnography
- Grounded theory

- Your **assumptions** on knowledge, *and* the type of **questions** you ask in your study, will help you decide on the methodology to adopt!

Interpretive research in IS: Some practical suggestions

Doing interpretive research (from Walsham, 2006)

- Walsham (2006): a reflection on how to carry out interpretive IS research, from inception to publication
- Reflections on carrying out fieldwork; gaining and maintaining access, collecting field data, and working in different countries
- Also: suggestions on theory and data analysis, and constructing and justifying a contribution to IS research
- A good starting point for our Zoom discussion!

To recap…

- In the previous lecture we have introduced the field of **Information Systems (IS)**, its main thematic areas and theoretical approaches

- Today we have identified three main epistemologies (positivist, interpretive, critical) informing IS research, along with the assumptions that characterise them

- We have then reviewed different methodologies to conduct qualitative IS research, which will equip you to critically assess the IS works you read – and start thinking of possible ways to structure your own research!

THANK YOU!