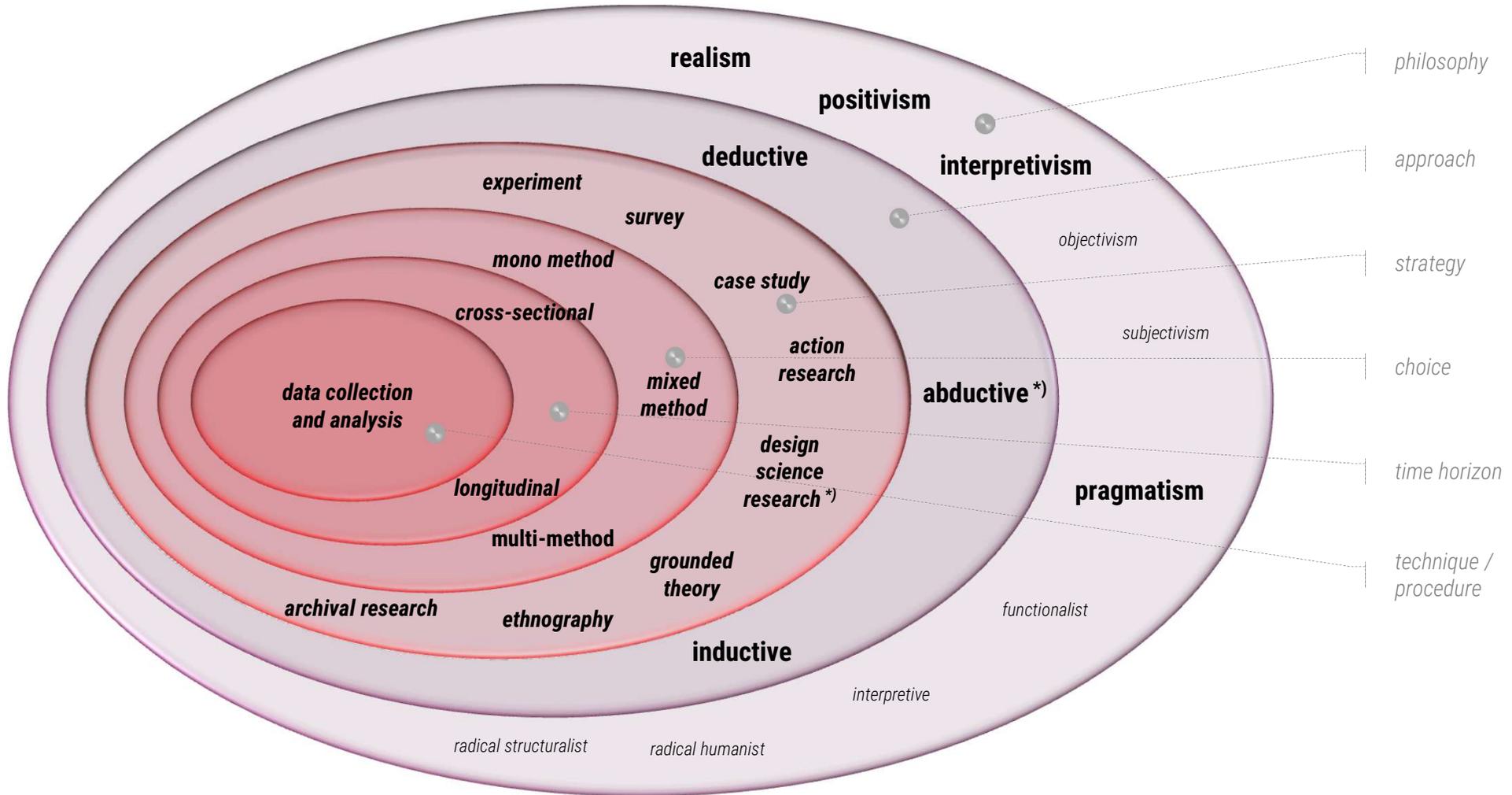# Applying Saunders Research Onion

Saunders Research Onion
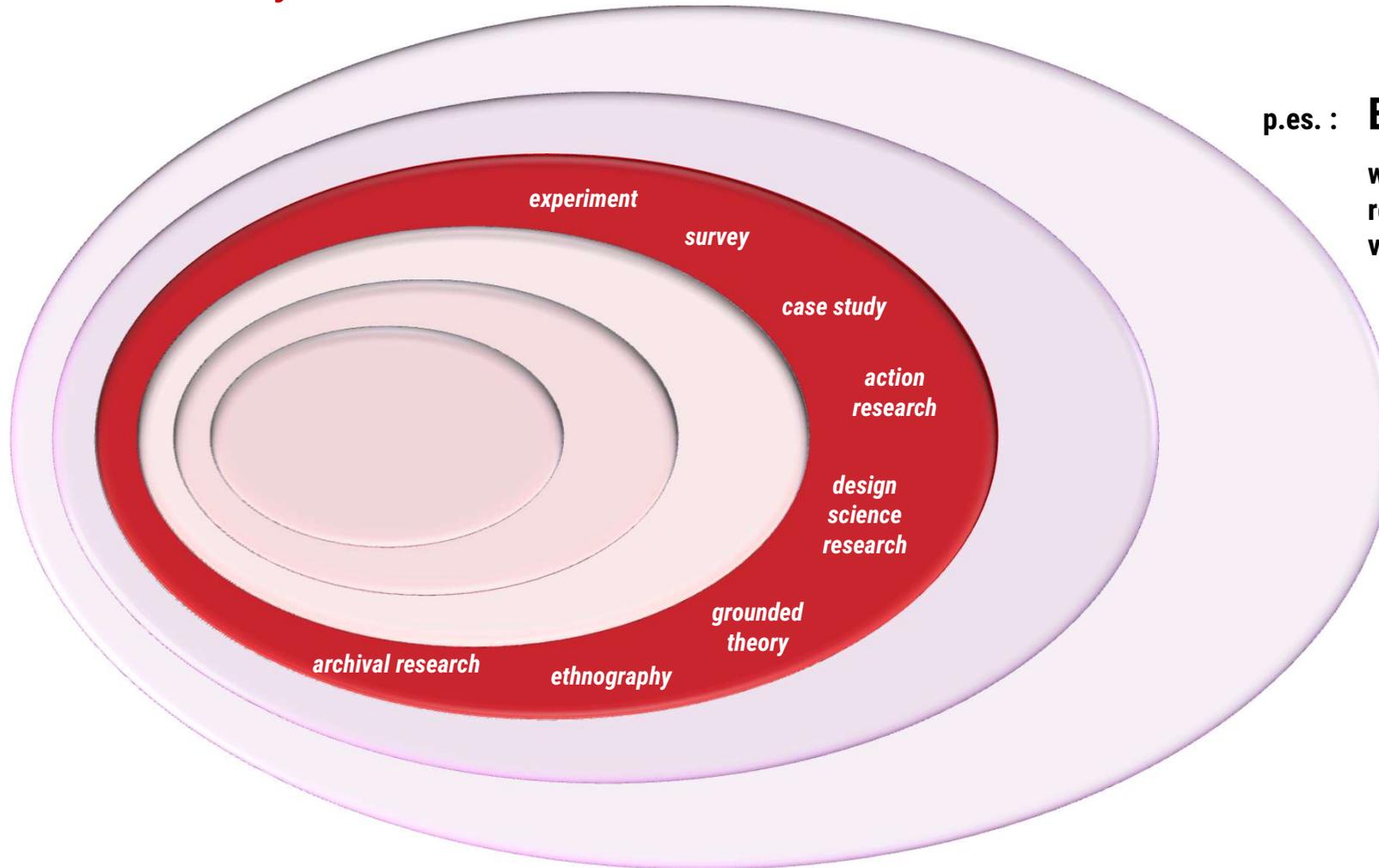

https://is.vsfs.cz/el/6410/leto2014/BA_BSeBM/um/Research_Methods_for_Business_Students__5th_Edition.pdf, page 108
http://writepass.com/journal/wp-content/uploads/2012/06/Research-Onion.jpg
*) added by author

Research Strategy

- How to carry out the work ?

experiment

survey

case study

action research

design science research

grounded theory

archival research

ethnography

p.es. : **Experiment**

we try to establish a cause-effect relationship between two or more variables

we systematically change the (independent) variable presumed to be the causal agent and then determines whether there are corresponding changes in the (dependent) variable under observation

Research Strategy

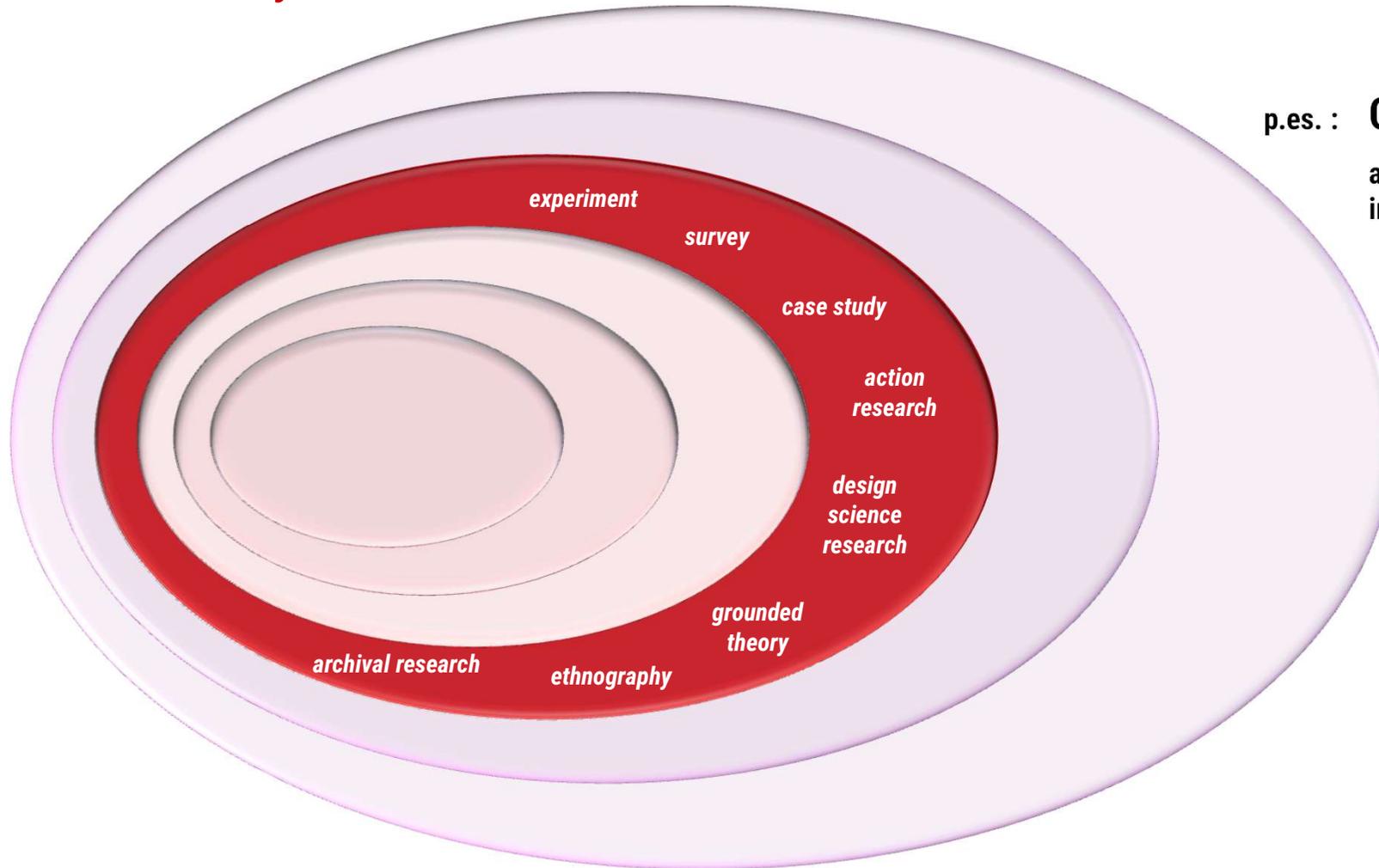## - How to carry out the work ?
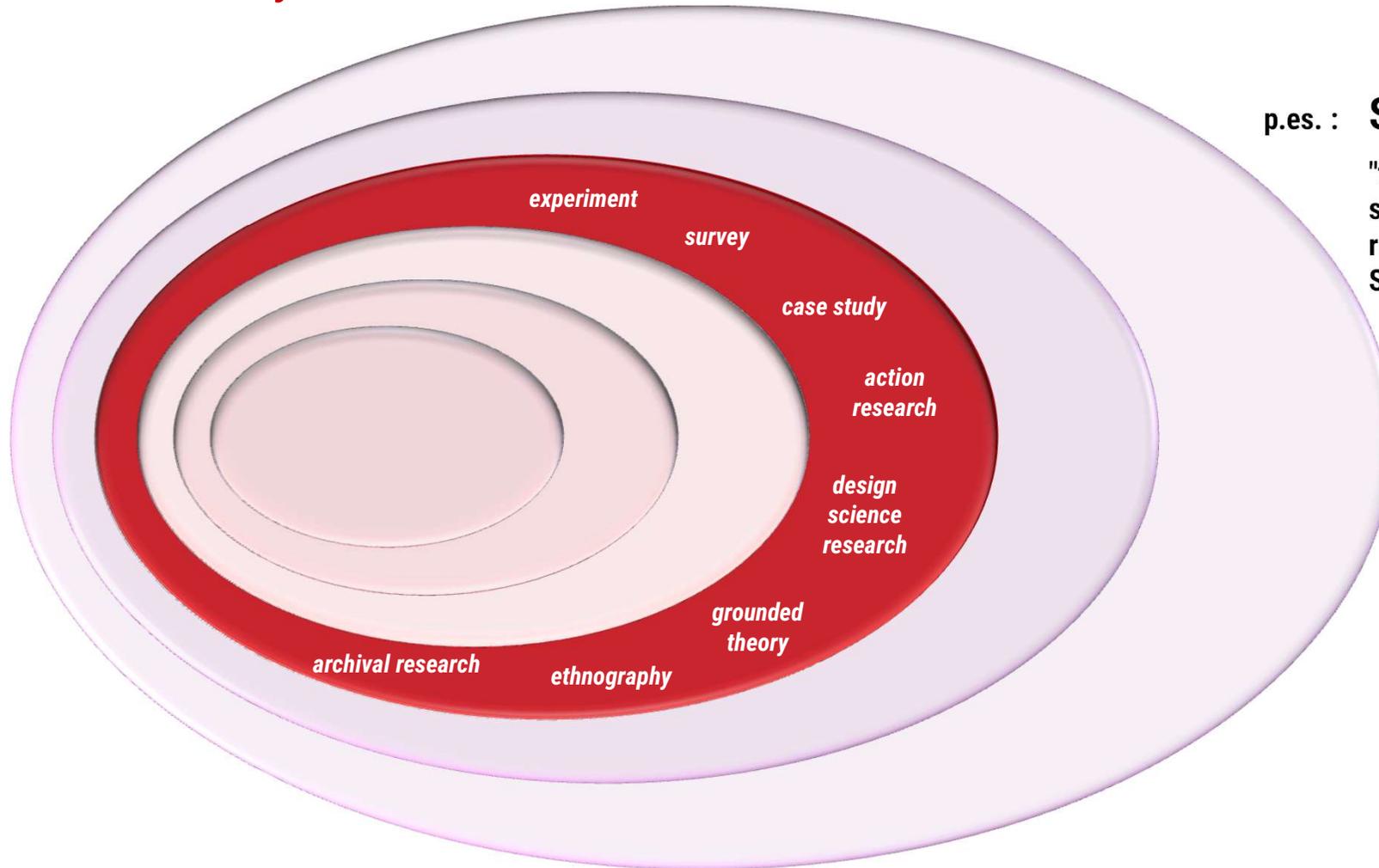
p.es. : **Survey**

"the collection of information from a sample of individuals through their responses to questions" (Check & Schutt, 2012, p. 160)

can be a
- quantitative research strategy
- qualitative research strategy
- both (mixed method)

Research Strategy

- How to carry out the work ?
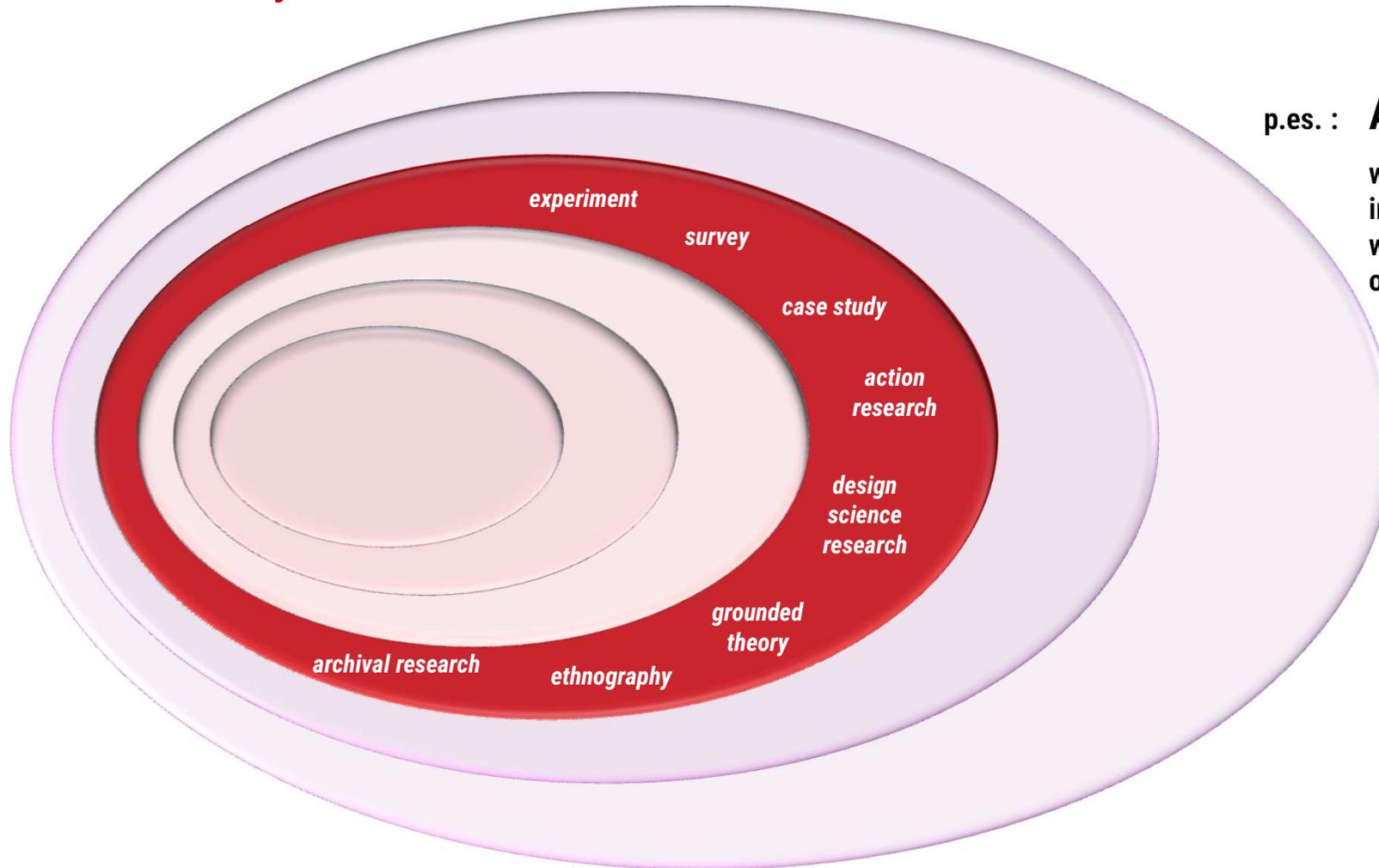

p.es. : **Case Study**

an empirical inquiry about an individual case or an organization

p.es. explains causal links in business intervention that are too complex for a survey or an experiment

we often answer 'how' and 'why' questions

Research Strategy

- How to carry out the work ?

experiment

survey

case study

action research

design science research

grounded theory

archival research
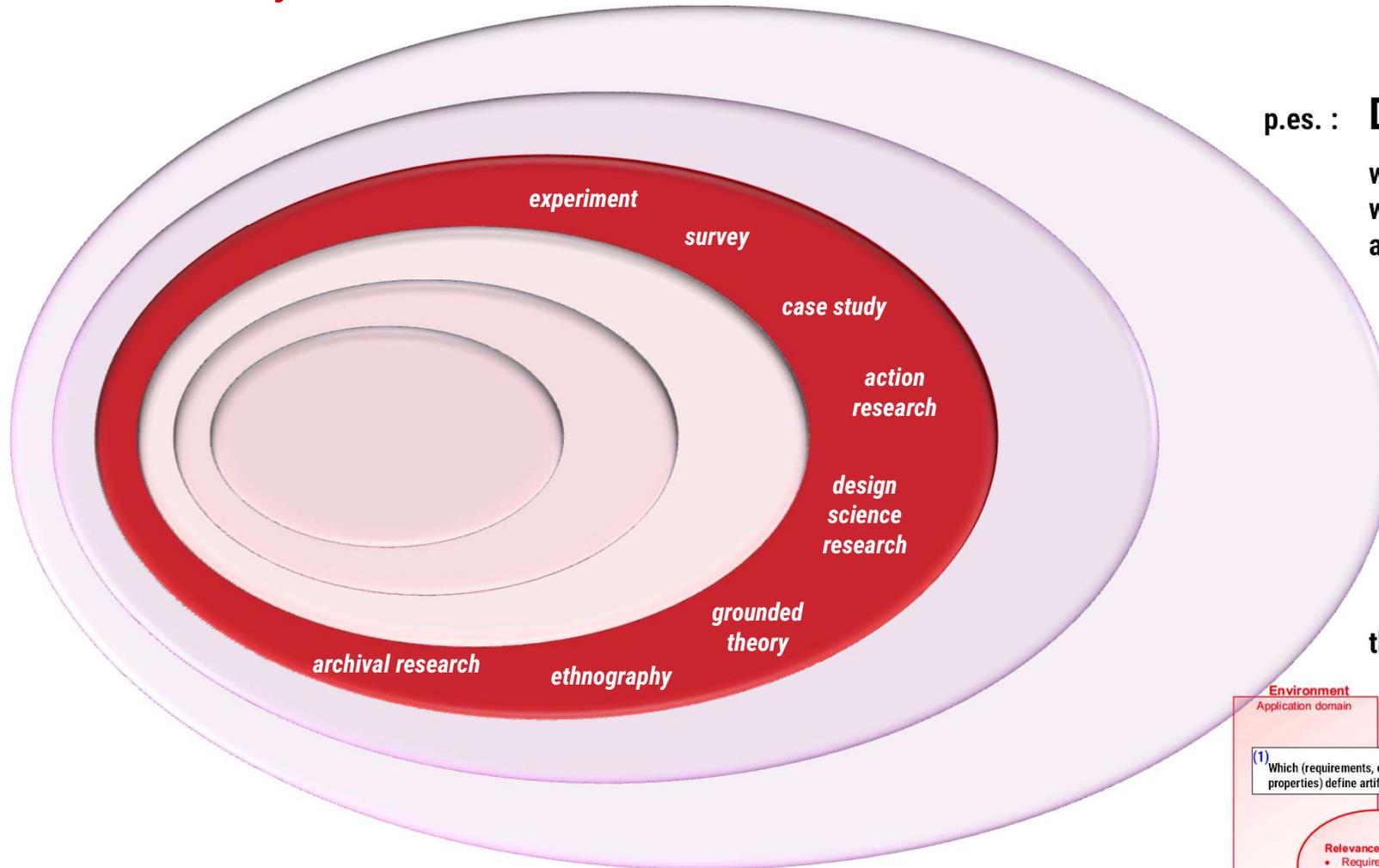
ethnography

p.es. : **Action Research**

we use it to face real-world problems in a participatory and collaborative way between researcher and member of organization in order :

- to gain knowledge and
- to solve organizational problems

Research Strategy

- How to carry out the work ?

experiment

survey

case study

action research

design science research

grounded theory
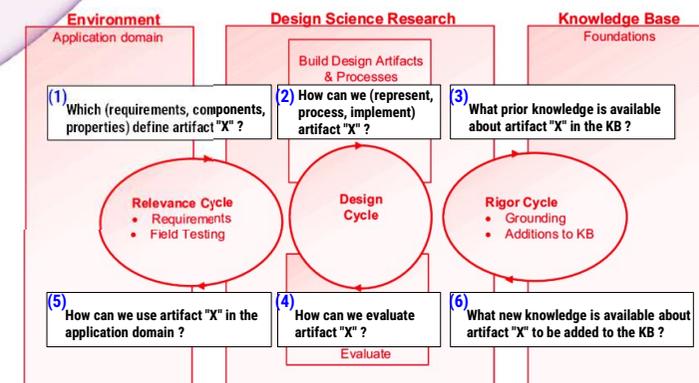
archival research   ethnography

p.es. : **Design Science Research**

we start from a real-world problem, which is mostly application-oriented and develop an artifact in order :

- to solve the problem
- to evaluate its problem-solving power

often used in application-oriented research disciplines such as business informatics

three circle view of DSR : [*]

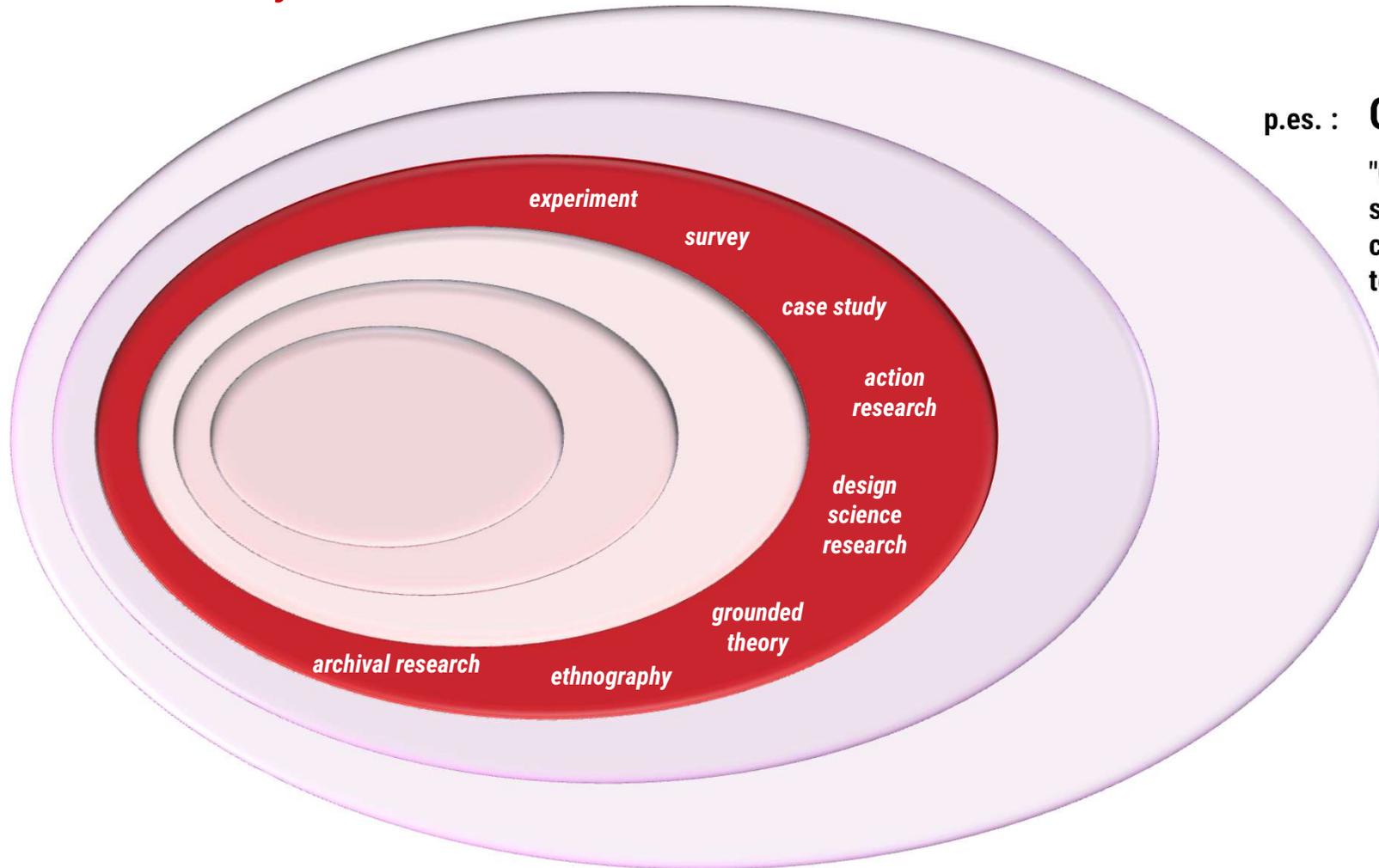| Environment Application domain	Design Science Research	Knowledge Base Foundations
	Build Design Artifacts & Processes	
(1) Which (requirements, components, properties) define artifact "X" ?	**(2)** How can we (represent, process, implement) artifact "X" ?	**(3)** What prior knowledge is available about artifact "X" in the KB ?
Relevance Cycle • Requirements • Field Testing	Design Cycle	Rigor Cycle • Grounding • Additions to KB
(5) How can we use artifact "X" in the application domain ?	**(4)** How can we evaluate artifact "X" ?	**(6)** What new knowledge is available about artifact "X" to be added to the KB ?
	Evaluate	

*) Positioning the DSR Genres in Hevner's Three-cycle View, Nguyen Hoang Thuan, Andreas Drechsler, Pedro Antunes, Construction of Design Science Research Questions, 2019

Research Strategy

- How to carry out the work ?

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survey

case study

action research

design science research

grounded theory

ethnography

archival research

p.es. : **Grounded Theory**

"Grounded theory refers to a set of systematic inductive methods for conducting qualitative research aimed toward theory development."
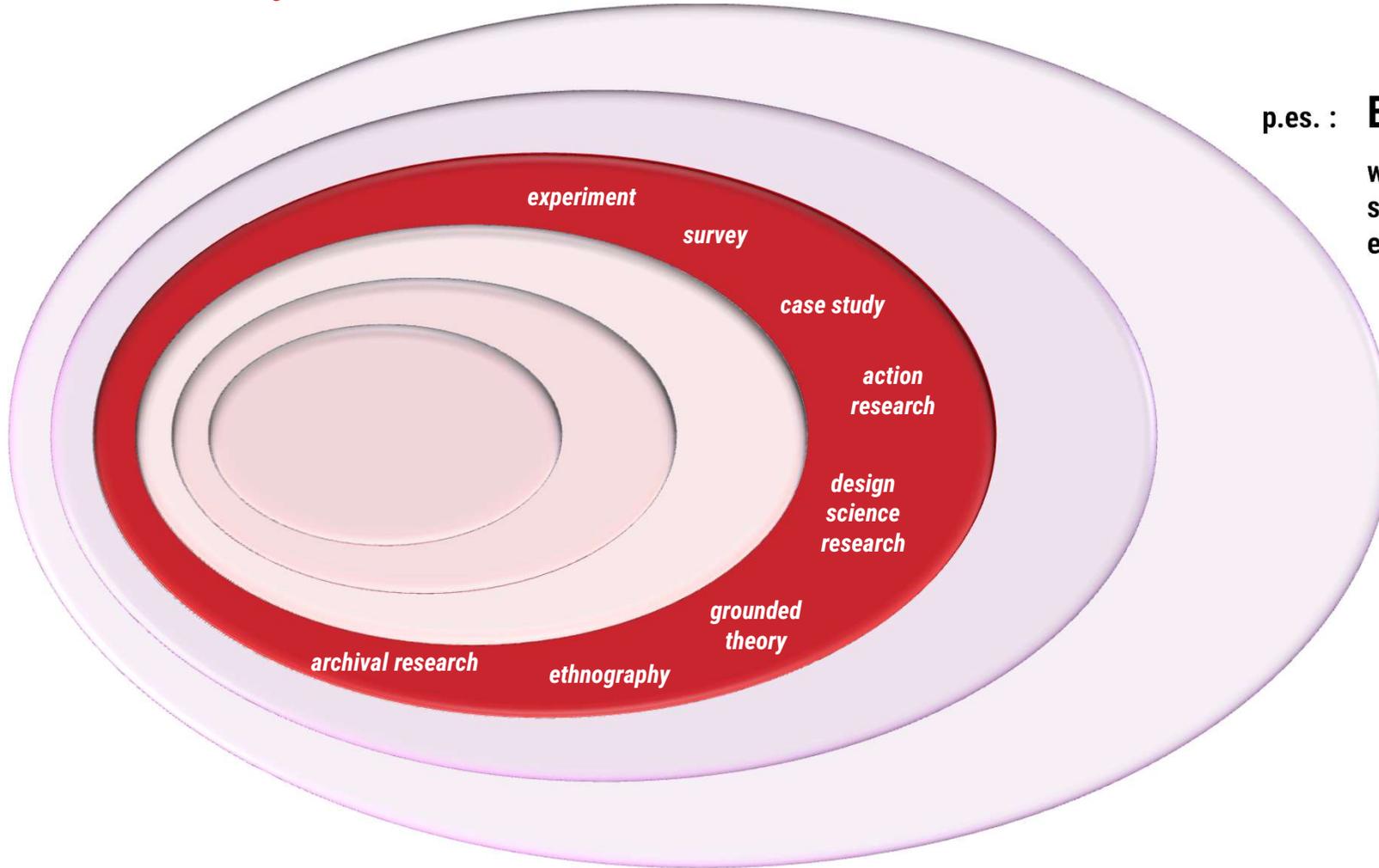
Charmaz, K. "Grounded Theory." The SAGE Encyclopedia of Social Science Research Methods, 2003

we often use qualitative data :
- interview transcripts or
- observation protocols

Research Strategy

- How to carry out the work ?

experiment

survey

case study

action research

design science research

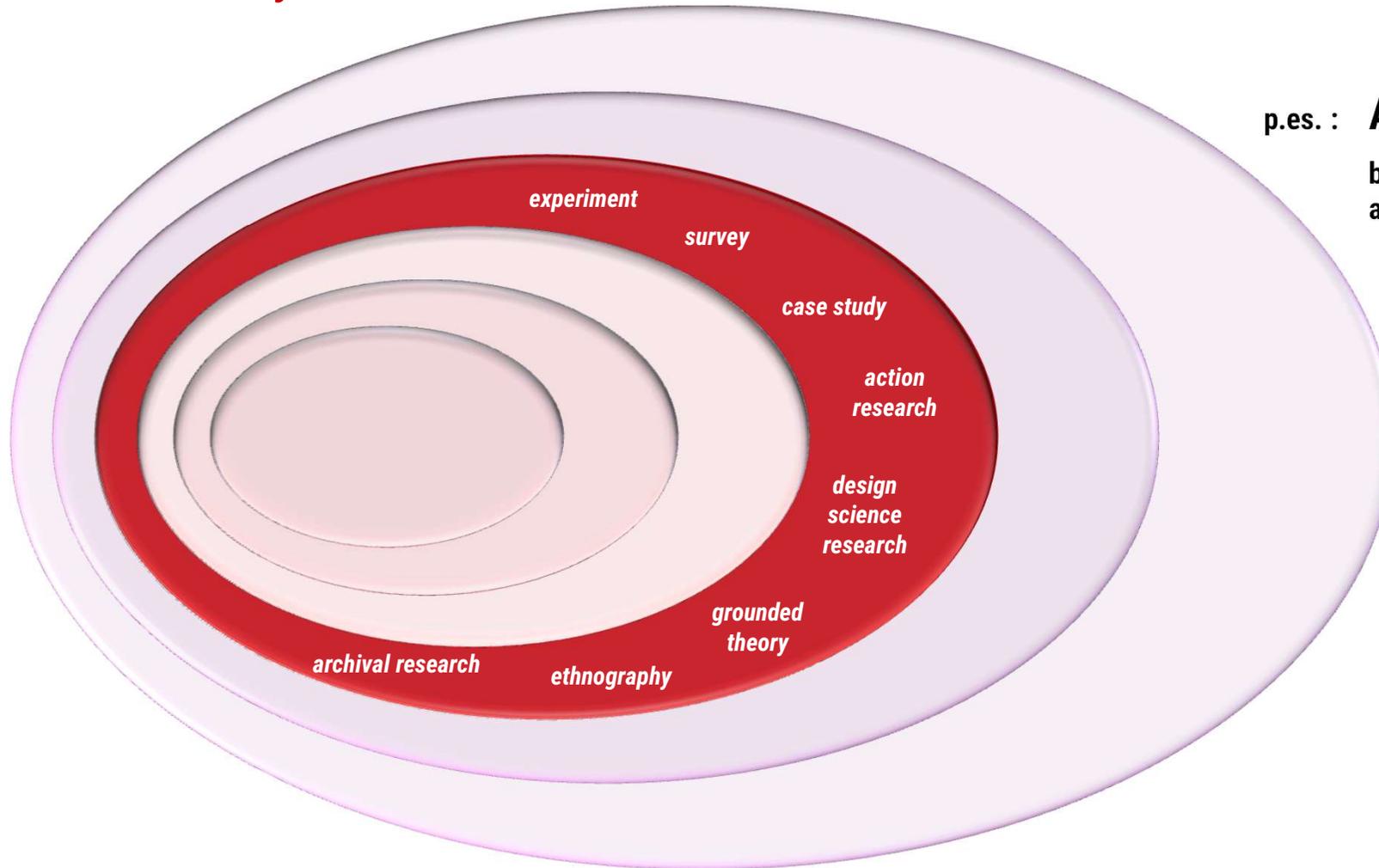grounded theory

ethnography

archival research

p.es. : **Ethnography**

we use it to explore cultures and societies as part of the human experience

we often collect data and gain insight through firsthand involvement with research subjects or business subjects

Research Strategy

- How to carry out the work ?

p.es. : **Archival Research**
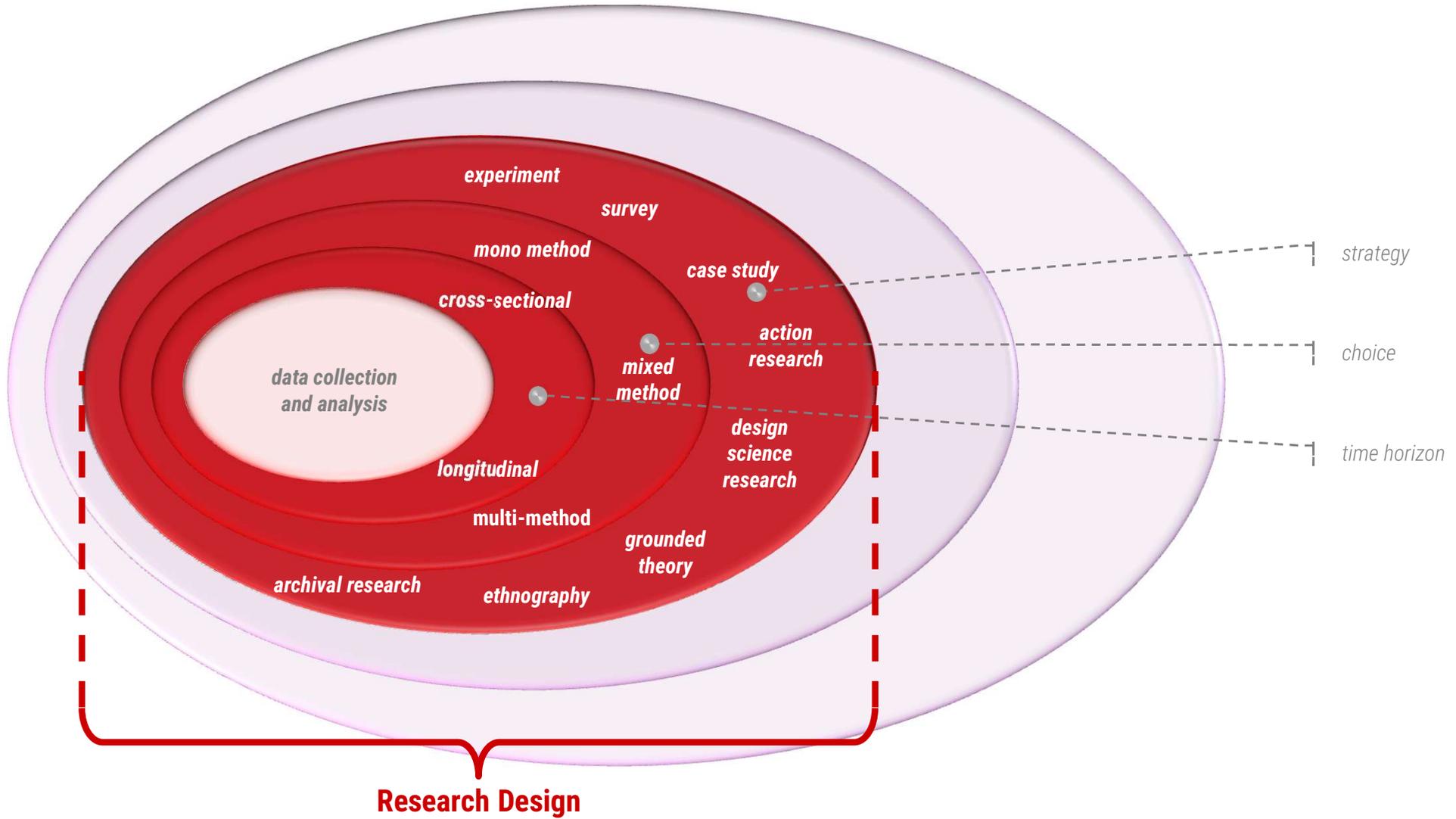
based on primary sources held in archives we extract evidence

we often use manuscripts, documents, videos, or other material

in archival research we don't use secondary sources relating to the topic of enquiry

Diagram labels (from outer to inner rings): experiment, survey, case study, action research, design science research, grounded theory, ethnography, archival research

Research Design – our Starting Point to Understand the Onion

- experiment
- survey
- mono method
- case study
- cross-sectional
- mixed method
- action research
- data collection and analysis
- longitudinal
- design science research
- multi-method
- grounded theory
- archival research
- ethnography

- strategy
- choice
- time horizon

Research Design
Research design is turning research question(s) into a project. *)

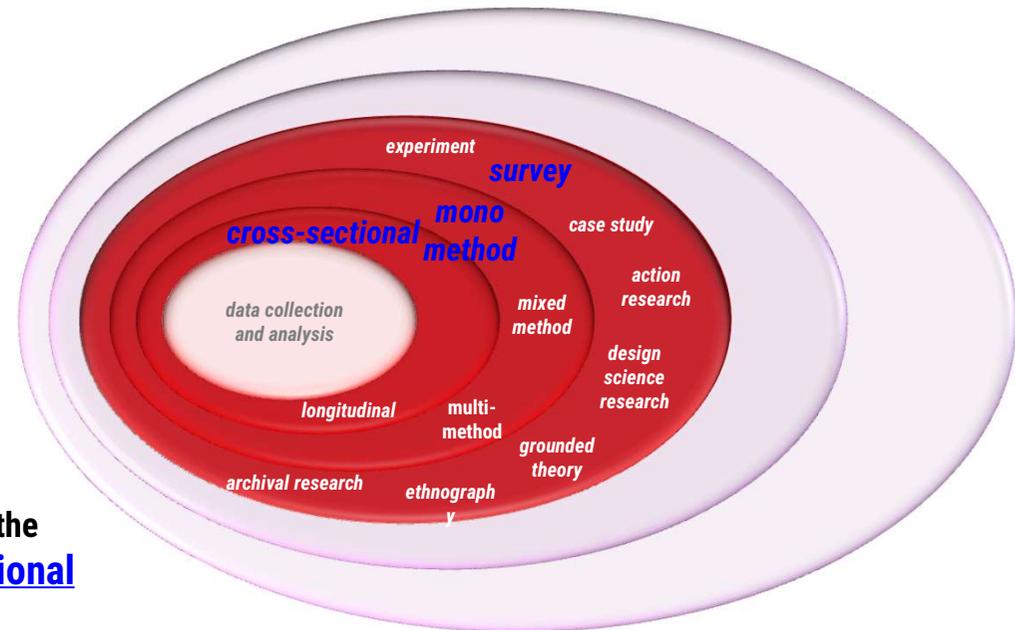*) Colin Robson, Real World Research, 2011, p.79

Research Design

- turning research question(s) into a project

example :

We want to proof a model for a relationship in a business environment.

- we decide to use questionnaires in a **survey**

- **if we use structured questionnaires only to collect quantitative data (numbers : who, what, where), it is a mono method**

- **if we have, due to time constrains, the possibility to collect the data in a given snap shot (of time), we call this cross-sectional (we have to ensure that the samples are representative !)**

Research Design

- turning research question(s) into a project

example :

We want to proof a model for a relationship in a business environment.

- **we decide to use questionnaires and interviews in a <u>survey</u>**

- **if we use structured questionnaires to collect quantitative data (numbers : who, what, where), and in addition structured interviews to collect furthermore quantitative data (numbers : who, what, where) it is a <u>multi-method</u>**

- **if we have, due to time constrains, the possibility to collect the data in a given snap shot (of time), we call this <u>cross-sectional</u> (we have to ensure that the samples are representative !)**
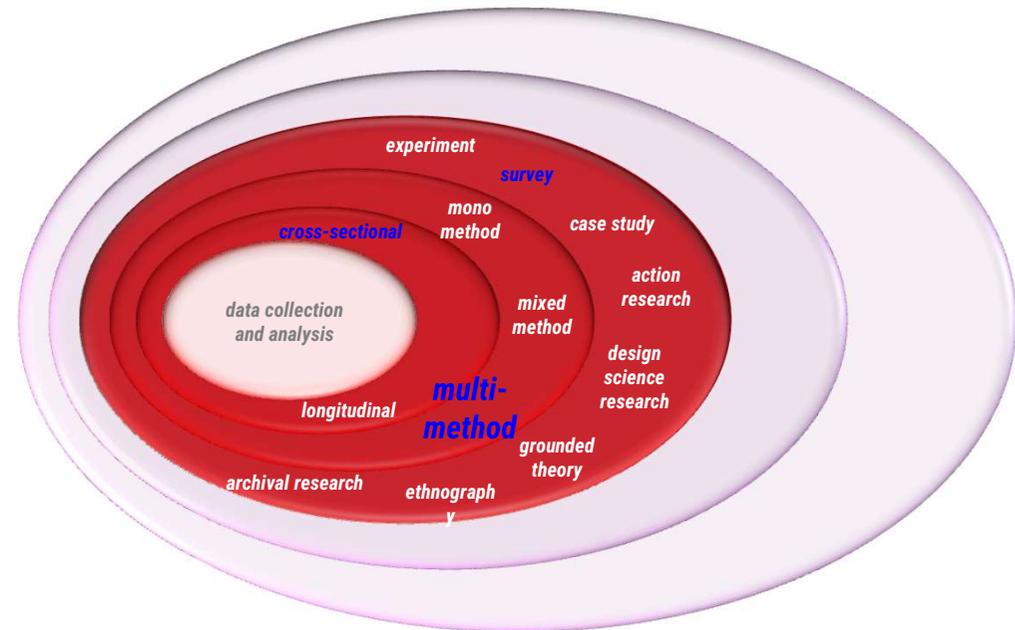

Within the onion diagram (from outer to inner): experiment, survey, case study, mono method, cross-sectional, action research, mixed method, multi-method, design science research, data collection and analysis, longitudinal, grounded theory, archival research, ethnography

Research Design

- turning research question(s) into a project

example :

We want to proof a model for a relationship in a business environment.

- we decide to use questionnaires and interviews
  in a **survey**

- if we use structured questionnaires to collect
  quantitative data (numbers : who, what, where),
  and in addition in-depth interviews to collect qualitative data
  (words, pictures, …) it is a **mixed method**

- if we have, due to time constrains, the possibility to collect the
  data in a given snap shot (of time), we call this **cross-sectional**
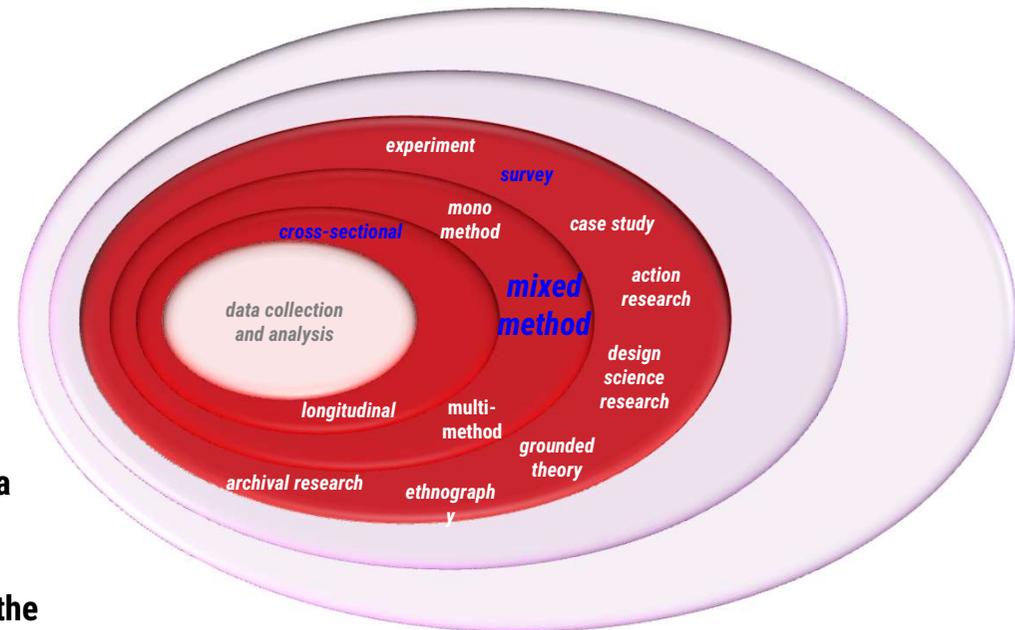 (we have to ensure that the samples are representative !)

experiment
survey
mono method
case study
cross-sectional
action research
mixed method
data collection and analysis
design science research
longitudinal
multi-method
archival research
grounded theory
ethnography

Research Approach

- Do we use the data (outcome from RD) to <u>test</u> a theory or hypothesis ? -> deductive reasoning

approach

deductive

abductive *)

R e s e a r c h   D e s i g n
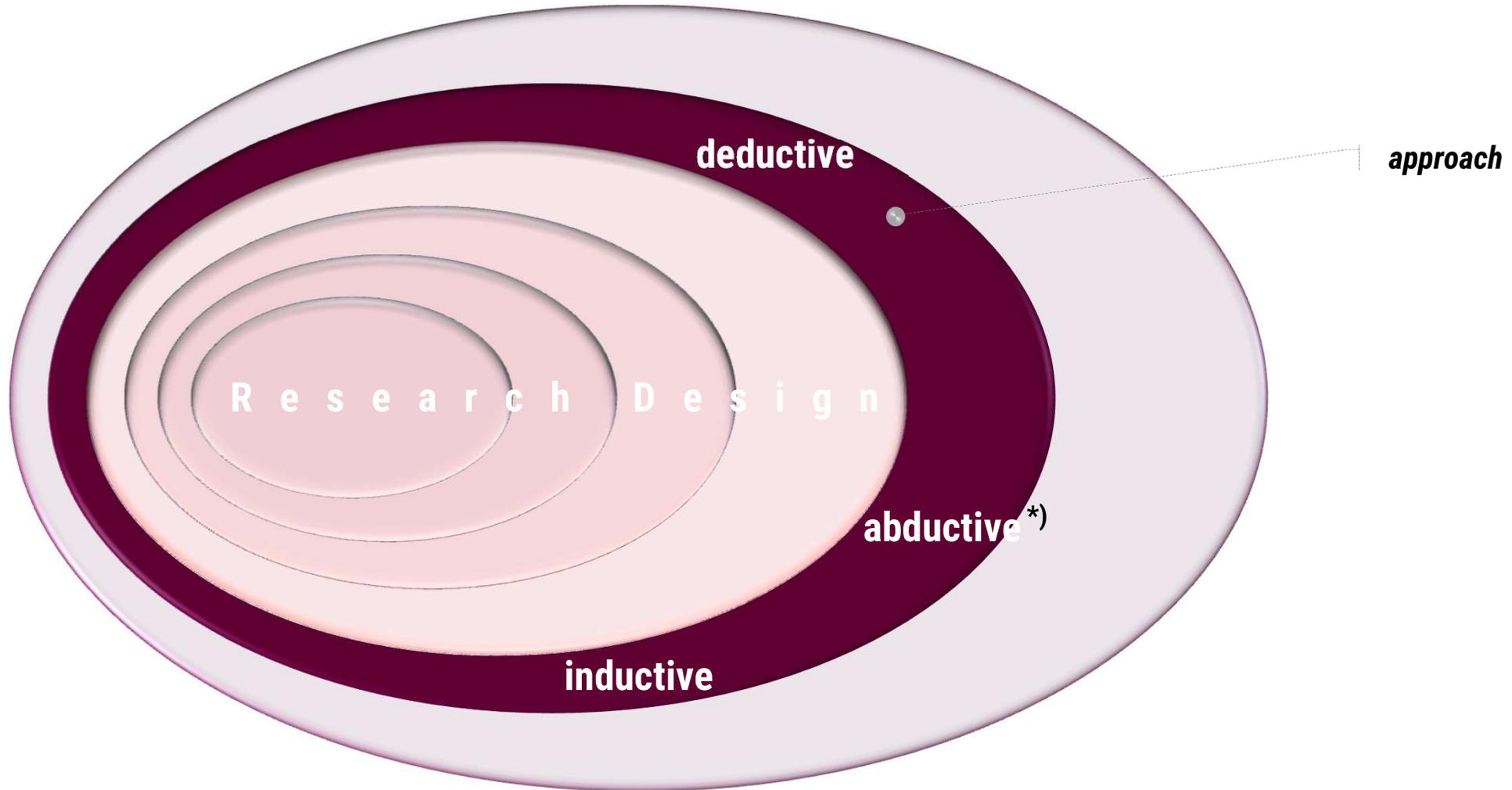
inductive

- Do we use the data (outcome from RD) to <u>build</u> a theory or hypothesis ? -> inductive reasoning
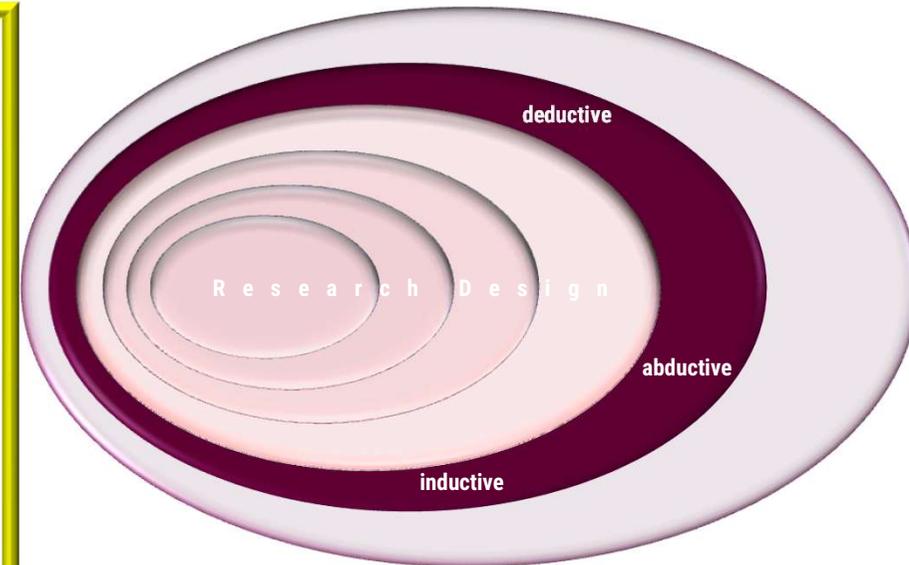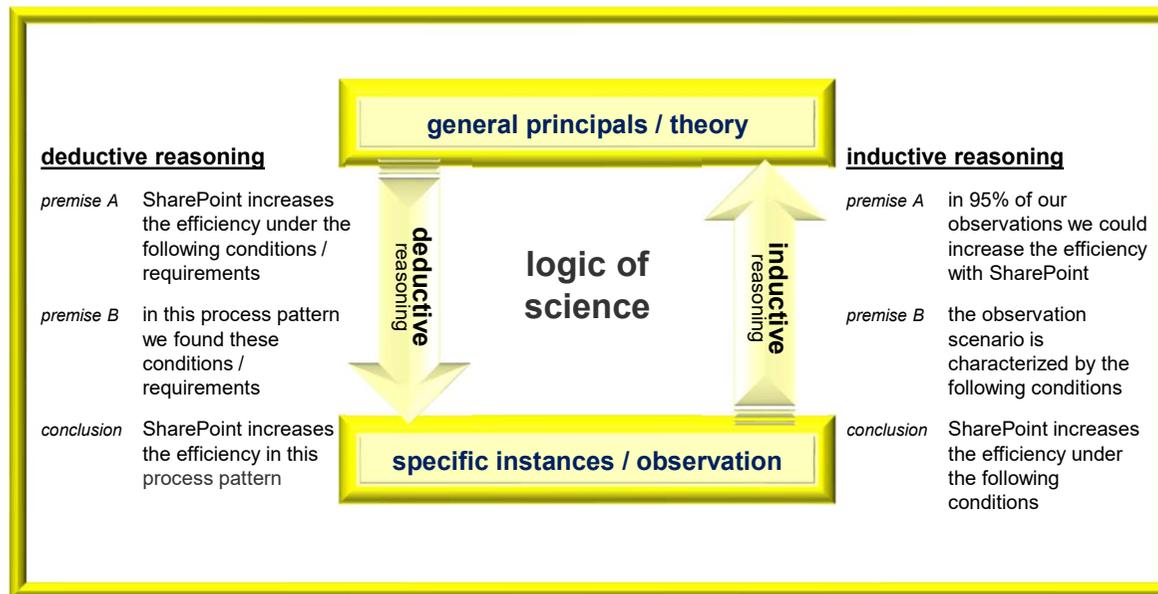
*) added by author, see next slide

Research Approach

example :

We want to proof a model for a relationship in a business environment.

- **in other words : we want to test a model / theory / hypothesis -> deductive approach**

or :

We want to formulate a model for a relationship in a business environment.

- **in other words : we want to build a model / theory / hypothesis -> inductive approach**

or :

We want to formulate and proof a model for a relationship in a business environment.

- **we will combine the inductive and deductive reasoning**

Schwaferts, Star of Business Informatics, www.schwaferts.de, p. 11

Research Approach

we add :
abductive reasoning

- **reasoning towards logical consequences**

- **extending the knowledges**

- **a conclusion from a known,
    true proposition and a
    credible proposition
  towards a conclusion according to the rules of [syllogism](#)**
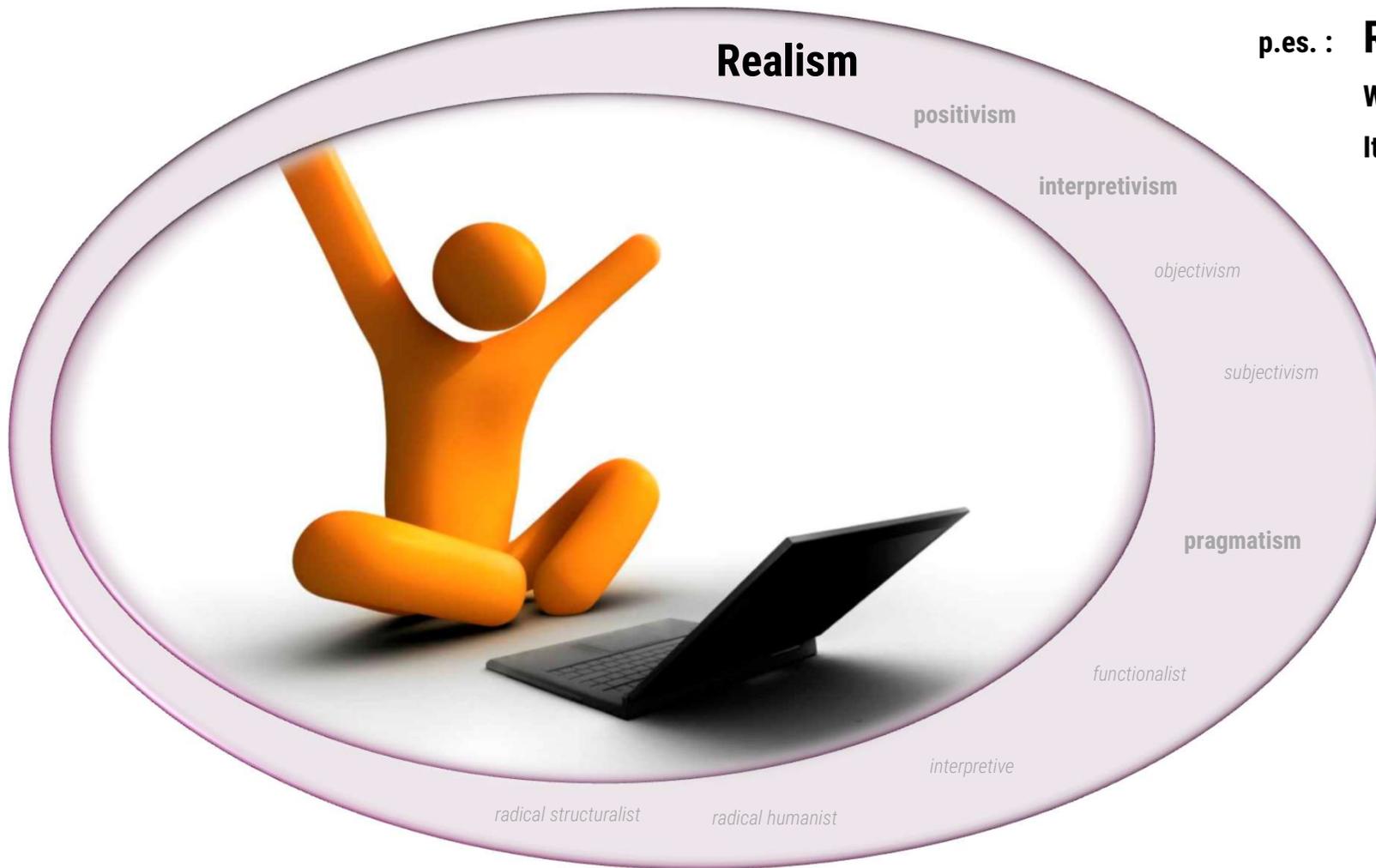
1st proposition	**all**	human beings	**are**	mortal
2nd proposition	**all**	Swiss	**are**	human beings
= conclusion	**all**	Swiss	**are**	mortal

Philosophy : Assumption about the Way, we See the World

Realism

positivism

interpretivism

objectivism

subjectivism

pragmatism

functionalist

interpretive

radical structuralist   *radical humanist*
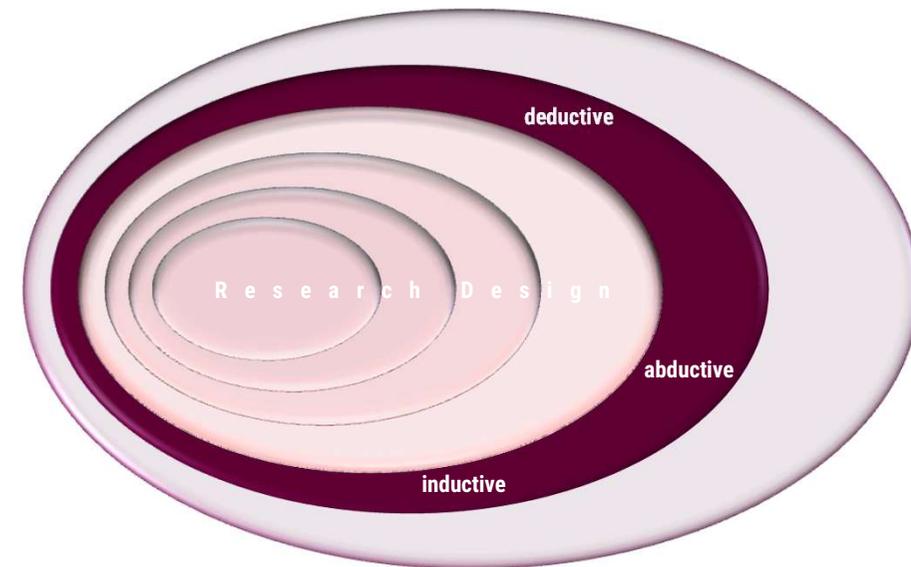
p.es. :   **Realism**

What I see is the reality !

It is independent of my mind.

It has a huge importance in the natural science.

"I can calculate the motion of heavenly bodies, but not the madness of people."
-- Isaac Newton

https://is.vsfs.cz/el/6410/leto2014/BA_BSeBM/um/Research_Methods_for_Business_Students__5th_Edition.pdf, page 114
https://en.wikipedia.org/wiki/Scientific_realism

Philosophy : Assumption about the Way, we See the World

realism

Positivism

interpretivism

objectivism

subjectivism

pragmatism

functionalist

interpretive

radical structuralist   radical humanist

p.es. : **Positivism**

New knowledge derives from positive interpretation of results from experiences (experiments).

Our target audience will accept the research results only, as long as they are repeatable and visible facts.

"working with an observable social reality and that the end product of such research can be law-like generalisations similar to those produced by the physical and natural scientists"

If we expect that our target audience will accept the research results only, as long as they are repeatable and visible, then we need a highly structured data collection, based on large samples.

Philosophy : Assumption about the Way, we See the World

realism

positivism

Interpretivism

objectivism

subjectivism

pragmatism

functionalist

interpretive

radical structuralist   radical humanist

p.es. : ## Interpretivism

While the positivism accepts only ONE reality and focus on the only one possible description/explanation, the interpretivist accepts that the research result is to understand and to interpret it according a specific context.

If our target audience will interpret our findings, we have to understand the interpretation of our findings in our field of investigation.

Therefore we need to understand the totality of a situation.

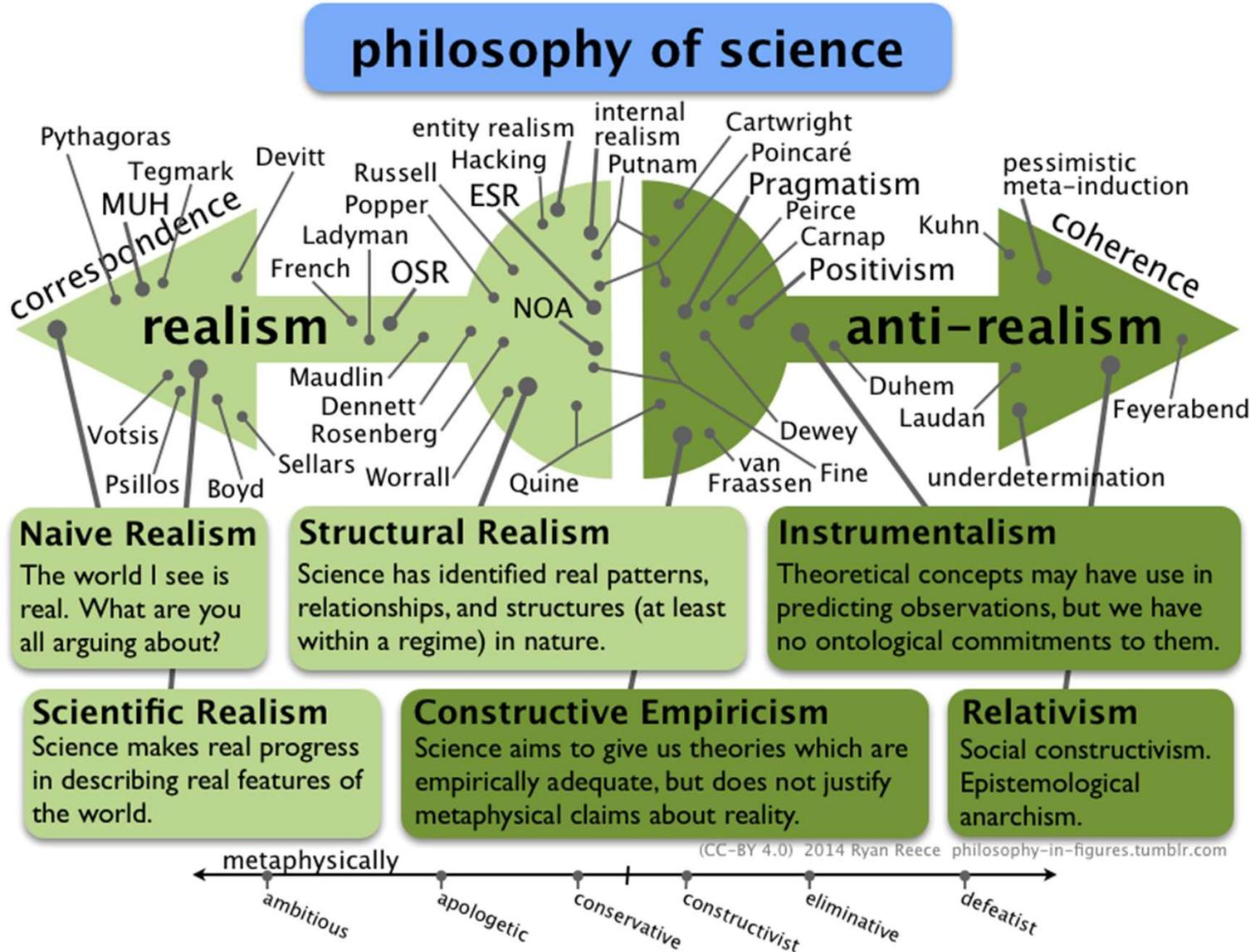**Qualitative research helps us to understand better a specific context.**

Philosophy : Assumption about the Way, we See the World

realism

positivism

interpretivism

objectivism

subjectivism

Pragmatism

functionalist

interpretive

radical structuralist   radical humanist

p.es. : **Pragmatism**

If the target audience doesn't care about the philosophy (realism or positivism or interpretivism), we are free to select the philosophy and methodology according the research question(s).

https://is.vsfs.cz/el/6410/leto2014/BA_BSeBM/um/Research_Methods_for_Business_Students__5th_Edition.pdf, page 109
https://en.wikipedia.org/wiki/Pragmatism

Philosophy : Assumption about the Way, we See the World

http://positivists.org/blog/wp-content/uploads/2015/05/Ryan-Reece-2014-07-18-scientific-realism-vs-anti-realism.png

Philosophy : Assumption about the Way, we See the World

Ontology

= believes what reality is … (p.es. **Realism / Positivist** <-> **Relativism / Interpretivist**)

Epistemology

= relationship, the researcher has to the research … (p.es. how do he discover new things)

=> **objective measurement (outsiders view)**

=> **find out what truth means to the target audience (inside view)**

Axiology

= philosophical study of value (p.es. Ethics <-> Aesthetics)

=> **Is it beauty, the way it is ?**

=> **Is it right/wrong, the way it is ?**

Final Example

We have to formulate a model for a relationship in a business environment.

- in order to **collect data** …

- we decide to use questionnaires and interviews in a **survey**

- we use structured questionnaires to collect quantitative data (numbers : who, what, where), and in addition in-depth interviews to collect qualitative data (words, pictures, …) -> **mixed method**

- we have, due to time constrains, the possibility to collect the data in a given snap shot (of time) -> **cross-sectional**

- **analyzing the data** we formulate a model -> **inductive**

- knowing that our target audience will interpret the model according a specific business environment, our philosophy is **interpretivism**