**Scientific and Research Methodology:**

**Research Philosophies, Approaches**

**and Research Design**

**Drahomíra Pavelková**



**2018**

**Authors:**

Drahomíra Pavelková, prof. Dr. Ing.

Tomas Bata University in Zlín, Faculty of Management and Economics

pavelkova@utb.cz

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# Introduction

Research is simply the process of finding solution to a problem after a study and analysis of influencing factors. This text gives the introduction to the nature of science and research, characteristics of business and management research and introduce research methodology, hierarchy, research philosophies and approaches following by defining the research design with introducing research methods applicable in business research.

This study material is organized as follows.

Chapter 1 contains explanation of nature of science (distinguishing natural and social sciences and humanities), and nature of research with detailed specification of business and management research. Research methodology and research hierarchy are shortly introduced.

Chapter 2 explains research paradigm and offer introduction and comparison of major research philosophies applied in business and management research.

Chapter 3 introduces deductive, inductive and abductive research approaches.The reasons for using particular approach respecting issues of logic, generalizability, use of data and theory, are summarized.

Chapter 4 is devoted to introduction of research design and its purpose. Research strategies (methods) as experiment, survey, archival and documentary research, ethnography, case study, action research, grounded theory and narrative research are described.

Chapter 5 deals with ethics issues of research. Main principles of ethics codes are explained.

I hope that this study text could help students to understand the basic principles of research philosophy and approaches and enable them to design their research in a way that will lead them to write and successfully defend the dissertation.

*Drahomíra Pavelková, author*

# 1 The Nature of Science and research

## 1.1 Science

**Science** is a **systematic way of exploring reality** that builds and organizes knowledge in the form of testable explanations and predictions about the universe.

The following branches of science could be distinguished:

* Natural science – is a branch of science concerned with the description, prediction and understanding of natural phenomena. This branch can be divided into physical sciences and life sciences.
* Physical sciences are concerned with natural phenomena of the earth, atmosphere and space (e.g. astronomy, anorganic chemistry, geology, physics, atmospheric science, oceanography)
* Life sciences are concerned with the scientific study of organism and related issues of bioethics (e.g. biology, medicine, neurosciences, interdisciplinary sciences)
* Social sciences and humanities are concerned with human society (e.g. history, sociology, political science, anthropology, law, geography, economics, education)

The sciences differ in used principles, subjects, methods and terminology.

The task of a scientist is to discover things that would otherwise be unaware, unnoticed or unconscious.

## 1.2 Research

According to Ghauri & Gronhaug (2010), research can be defined as a process that people undertake in a **systematic way** in order **to find out things,** thereby increasing their knowledge.

Characteristics of research can be defined as following (Saunders et al., 2016):

* + data are collected systematically
  + data are interpreted systematically
  + there is a clear purpose: to find out things

**Systematic way** suggests that research is based on logical relationships and not just beliefs.

Research involves:

* an explanation of the methods used to collect the data,
* arguments why the results obtained are meaningful,
* explanations any limitations that are associated with them.

**To find out things** suggests that there is a multiplicity of possible purposes for research. The purposes of research can include describing, explaining, understanding, criticising and analysing. (Ghauri & Gronhaug, 2010).

*Research is the process of creating new knowledge. It is a planned activity that is driven by an effort to answer research questions and to contribute to the development of the field.*

## 1.3 Business and management research

Business research can be described as *“a systematic and organized effort to investigate a specific problem encountered in the work setting, which needs a solution”* (Sekaran & Bougie, 2016, p.2).

According to Easterby et al. (2011), we can use common methods in **management** **and business research** – *“…there is a great deal in common between two areas”* (p.2).

*Management research* concentrates more on the nature and consequences of managerial actions covering any kinds of organizations (public, private).

*Business research –* focuses more on determinants of corporate performance (focus predominantly on private organisations). (Easterby-Smith et al., 2011)

Sekaran & Bougie (2016) define two types of business and management research i) **basic (fundamental, pure) research** making a contribution to existing knowledge and ii) **applied research**, which is done with the intention of applying the results of the findings to solve specific problems currently being experienced in an organisation. Both of them are carried out in *a scientific* way.

Authors characterize scientific research as following (p.18): “*Scientific research focuses on solving problems and pursues a step-by-step logical, organized, and rigorous method to identify the problems, gather data, analyse them, and draw valid conclusions from them. Thus, scientific research is not based on hunches, experience, and intuition (though these may play a part in final decision making), but it is purposive and rigorous.”*

Status of management research is under wide debate, some examples of this debate are following:

* management research is transdisciplinary research (British Academy of Management),
* it should be able to develop ideas and relate them to the practice - in particular, that research should complete a virtuous circle of theory and practice through which research on managerial practice informs practically derived theory (Tranfield & Starkey, 1998),
* how it can meet the double hurdle of being both theoretically and methodologically rigorous, while at the same time embracing the world of practice and being of practical relevance (Hodgkinson et al. 2001),
* mission of academic management research is to develop valid knowledge to support thoughtful, designing practitioners to support organisational problem solving (directly, instrumentally or indirectly - giving general enlightenment on the type of problem) (Huff et al., 2006).
* Gibbons et al. (1994) introduced the concepts of Mode 1 and Mode 2 knowledge creation:
* Mode 1 knowledge creation emphasises research in which the questions are set and solved by academic interests, emphasising a fundamental rather than applied nature, where there is little if any focus on utilisation of the research by practitioners.
* Mode 2 emphasises a context for research governed by the world of practice, highlighting the importance of collaboration both with and between practitioners and the need for the production of practical relevant knowledge.
* Starkey & Madan (2001) observe that research within the Mode 2 approach offers a way of bringing the supply side of knowledge represented by universities together with the demand side represented by businesses and overcoming the double hurdle.
* Van De Ven & Johnson (2006) examine three related ways in which the gap between theory and practice has been framed:

1. knowledge transfer problem - practitioners fail to adopt the findings of research in fields, such as management because the knowledge is produced in a form that cannot be readily applied in practical contexts.

2. knowledge of theory and practice as distinct kinds of knowledge - each reflects a different fundamental approach for addressing different questions.

3. the gap between theory and practice is a knowledge production problem which questions the traditional mode of research practised in business and professional schools and has led to the proposal that a key defining characteristic of management research is its applied nature.

Business and management research cover many sub-areas pertaining to the social relationships that comprise the human economic systems:

* Economics
* Management
* Human resource management
* Finance
* Accountancy
* Marketing
* Organizational studies

## 1.4 Methodology of research and the research hierarchy

Methodology of research:

* *examines methods and research processes,*
* *facilitates the choice of research methods and a guide on how to use the selected methods in scientific research,*
* *is essential for the orientation in the system of research work and for correct interpretation of the research results.*

The research hierarchy, explained in next text, is illustrated in Figure 1.

**Figure 1: Research hierarchy.** Source:Pickard, 2013, adapted

**What can be imagined under each level of research hierarchy?**

* **Research paradigm (research philosophies):** Positivism x Realism x Interpretivism x Pragmatism
* **Research approaches:** Qualitative (Inductive) x Quantitative (Deductive)
* **Research methods (strategies):** Survey, Case study, Delphi, Grounded theory, Action research, Ethnography, Archival and Documentary research
* **Research techniques (data collection techniques):** Questionnaire, Interview, Observation, Experiment
* **Research instruments:** Human, Websites, Pencil, etc.

# 2 Research Philosophies

## 2.1 Introduction to research paradigms (philosophies)

All research models begin at that philosophical level which defines paradigm. Kuhn (1970, p.146) defines paradigms as …”*the entire constellation of beliefs, values, techniques, and so on shared by members of a given community”* and they “*provide the concrete puzzle solution or exemplar of how to solve a scientific problem* (Seale, 1998, p.12). Guba (1990, p. 17) depicts paradigm as *„…basic set of belief that guide action.”*

*Research paradigm (philosophy) contains important assumptions about the view on the world – underpin research approach and strategies (methods).*

Paradigm is defined by following questions:

1. *What is the nature of reality?* (ontological question)
2. *What is the nature of the relationship between the knower and the known? What is acceptable knowledge in a particular field of study?* (epistemological question)
3. *How can we come to know it?* (methodological question)

**Ontology** (from Greek *ontos* meaning ‘being', and *logos*, meaning 'logical discourse') is concerned with nature of being, becoming, existence, reality.

*The researcher’s view of the nature of reality or being.*

**Epistemology** (from Greek *episteme,* meaning 'knowledge', and *logos*) is concerned with the theory of knowledge.

*The researcher’s view regarding what constitutes acceptable knowledge.*

**Axiology** (from Greek axia meaning 'value, worth'; and *-logos*) is the philosophical study of value.

*The researcher’s view of the role of values in research.*

Business and management emerged as an academic discipline in 20th century, it drew its theoretical base from a mixture of disciplines in the social sciences, natural sciences, humanities and of organisational practice. It resulted in the coexistence of multiple research philosophies, approaches and methodologies. (Saunders et al., 2016).

From the **objectivist** point of view, social and physical phenomena exist independently, social entities exist independent of social actors– it makes sense to study them in the same way as a natural scientist would study nature – management is an objective entity, it could be studied through the medium of observable, measurable facts.

From the **subjectivist** point of view, social reality is made from the perceptions and consequent actions of social actors – assumptions of humanities are incorporated. Saunders et al. (2009).

**Realism** is another philosophical position which relates to scientific enquiry. The essence of realism is that what the senses show us as reality is the truth: that objects have an existence independent of the human mind. There are two types of realism:

* *Direct realism* - what you see is what you get
* *Critical realism* – what we experienced are sensations, the images of the things in the real word, not the things directly. The social world is constantly changing, and it is much more in line with the purpose of business and management research which is often to understand the reason for phenomena as a precursor to recommending change. (Sekaran & Bougie, 2016, Saunders et al., 2009)

### 2.1.1 Major research paradigms (research philosophies)

The results of comparison of major research philosophies in business and management research are summarized in Table 1.

**Table 1: Comparison of major research philosophies in business and management research**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Positivism** | **Post-positivism** (one of the common form of post-positivism is **critical realism)** | **Interpretivism** |
| *Ontology* | Working with an observable social reality, reality is external, objective and independent of social actors, one true reality | Belief that a reality exists (like positivists), though it can be known only imperfectly.These imperfections are the result of human fallibility. | Belief in multiple, complex, constructed realities that cannot exist outside the social context that create them. Realities vary in nature and are time and context bound. Flux of processes, experience, practices. |
| *Epistemology* | Only observable phenomena can provide credible data, measurable facts, focus on causality and law like generalisations, reducing phenomena to the simplest elements. Causal explanation and prediction as contribution. The investigator and investigated are independent of each other. | Acceptance that independence is not possible, but objectivity is seen as the goal and demonstrated by external verification. | Results of the investigation are a product of interaction between the subject and the investigator. What can be known is a result of the interaction. Focus on narratives, stories, perceptions and interpretations. New understandings and worldviews as contribution. |
| *Axiology* | Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance. | Bias is undesired but inevitable, and therefore the investigator must work to detect and try to correct it. | Research is value bound, the researcher is part of what is being researched, cannot be separated and so will be subjective. |
| *Methodological stance* | Deductive, hypotheses testing, variables identified before the investigation. Typical quantitative methods of analysis. | Hypotheses testing but more emphasis placed on the context. Quantitative and qualitative. Analysis by variables. | Inductive, the researcher has to adopt an empathetic stance. Investigator interacts with the object of interaction. Qualitative, analysis by case. |
| *Data collection techniques* | Highly structured, large samples, measurement, quantitative. | Highly structured, large samples, measurement, quantitative. | Small samples, in-depth investigations, qualitative methods of analysis, but a range of data can be interpreted. |
| *Purpose* | Prediction /control /explanation. Framing of general laws. | Prediction /control /explanation. Framing of general laws. | Understanding /reconstruction. Transfer of findings. |

Source: Sekaran & Bougie, 2016, Saunders et al. 2016, Trochim & Donnelly, 2008, Lincoln & Guba, 1985, Pickard, 2013, adapted

Saunders et al. (2009) add, if using **pragmatic approach**, that the most important determinant of the epistemology, ontology and axiology is the research question – one may be more appropriate than the other for answering particular questions. Moreover, if the research question does not suggest unambiguously that either a positivist or interpretivist philosophy is adopted, this confirms the pragmatist’s view that it is perfectly possible to work with variations in epistemology, ontology and axiology. This mirrors a theme that mixed methods, both qualitative and quantitative, are possible. There is an emphasis on practical solutions and outcomes.

### 2.1.2 The research philosophies - summary

In following text some views of experts on selection appropriate approach are described.

Easterby-Smith et al. (2011) suggest the **positivist approach** where you are able to:

* stay independent of what is being observed
* decide how and what to study from objective criteria and not personal bias
* be able to hypothesize first then deduct observations to prove or disprove the hypothesis
* operationalize concepts in order to measure facts quantitatively
* reduce concepts and problems to the simplest possible elements in order to understand them
* gain a sufficient sample size in order to generalize
* carry out the cross sectional analysis in order to identify regularities

Authors suggest the **interpretivist approach** if:

* you can understand and explain why people have different experience or maps of the world rather than search for external causes and fundamental laws to explain their behavior.

This approach is highly appropriate in the case of business and management research (particularly in organisational behaviour, marketing, HRM).

According to Bryant (2011) - for epistemological issues and subsequently, in actually performing research, it is important that these issues are concerned with:

* types and quality of data
* the nature of evidence
* processes of analysis
* reliability of sources

Saunders et al. (2009) summarize that from the positivist stances, deductive and more scientific views is preferable, “counting and measuring”, e.g. quantitative research methods. Accepting interpretivist stances, inductive “deeper truth” reasoning views are preferable and observational qualitative research methods are employed.

# 3 Research approaches

Three basic research approaches – *deduction, induction* and *abduction* imply research and methodological choice.

1. **Deduction** – from the more general to the more specific

If research starts with theory, often developed from reading of academic literature and the researcher designs a research strategy to test the theory, the **deductive approach** is used (Figure 2).

**Figure 2: Deductive approach.** Source: Trochim & Donelly (2008), adapted

1. Induction – from a specific observation to broader generalisations and theories.

If research starts with collecting data to explore a phenomenon and the theory is generated, the inductive approach is used (Figure 3).

**Figure 3: Inductive approach.** Source: Trochim & Donelly (2008), adapted

If research starts with collecting data to explore a phenomenon, identify themes and explain patterns, to generate a new or modify an existing theory which is subsequently test through additional data collection, the 3) **abductive approach** is used (Saunders et al., 2016).

**The reasons for using particular approach** respecting issues of logic, generalizability, use of data and theory, are summarized as it follows in Table 2.

**Table 2: Research approaches**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Logic* | *Generalizability* | *Use of data* | *Theory* |
| **Deduction** | when the premises are true, the conclusion must also be true | from the general to the specific | to evaluate propositions or hypotheses related to an existing theory | theory falsification or verification |
| **Induction** | known premises are used to generate untested conclusions | from the specific to general | to explore a phenomenon, identify themes and patterns and create a conceptual framework | theory generation and building |
| **Abduction** | known premises are used to generate testable conclusions | from the interaction between the specific and the general | to explore a phenomenon, identify themes and patterns and create a conceptual framework and test this through subsequent data collection and so forth | theory generation or modification, incorporating theory where appropriate, to build a new theory or modify the existing one |

Source: Saunders et al., 2016

# 4 Research design

Research design is a general plan of how to go about answering research questions, e.g. a plan for the collection, measurement, and analysis of data to answer the research questions.

Basic research approaches - deduction, induction and abduction imply research and methodological choice. Methodological choice then is about using quantitative, qualitative or mixed methods research design.

## Choice and coherence in research design

Figure 4 illustrates relationship and reflexive process of research philosophy and research design.

**Figure 4: Relationship of research philosophy and research design**

## Recognizing the purpose of research design

Research can be designed to fulfil a different purpose, as exploratory, descriptive, explanatory, evaluative study or combination of them (Saunders et al., 2016).

**Exploratory studies** are carried out for developing an initial, rough understanding of some phenomena, to ask questions, and to assess the phenomena in a new light. Typical questions in these studies are *What? How?*

The advantage is that exploratory research is flexible and adaptable to change.

**Descriptive studies** are prepared to gain an accurate profile of events, persons or situations. The finding of which elements fall into the scope of the research and what their characteristics are. Typical questions in these studies are *Who? What? Where? When?*

Usually it is not enough to finish with description, but descriptive research could be a precursor for further research (e.g. for explanatory research).

**Explanatory studies** are devoted to establishing the causal relationships between variables. Typical questions in these studies are *Why, how and under what circumstances the phenomena do relate to each other?*

**Evaluative studies** deal with how well something works. Typical questions in these studies are *How? What … To what extent?*

## Research strategies (methods)

According to Denzin and Lincoln (2011), **research strategy** is:

* a plan of action to achieve a goal
* how a researcher will go about answering her or his research question
* methodological link between philosophy and subsequent choice of methods to collect and analyse data

*Choice of the research strategy (method) is guided by research questions and objectives.*

### Experimental research

The experiment is connected with deductive approach to research, its aim is to study casual relationships between variables. The predictive hypotheses are formulated. The researcher manipulates the independent variable to study the effect on the dependent variable.

The simplest experimental design is a two-group experiment – one group gets a treatment and the other group does not get the treatment (pre-test and post-test comparisons).

Experimental designs are not always feasible with solving management problem.

If experiments are used, they are conducted rather in the laboratory or in the field. There is trade-off between internal and external validity, to ensure both types of validity, researchers usually try first to test the casual relationships in tightly controlled artificial or lab setting following by a field experiment.

For a **classical experiment** a sample of participants is selected and then randomly assigned to either an experimental group (with manipulation, intervention) or to the control group (no manipulation, intervention).

For a **quasi-experiment** the experimental group and the control group is used, but the researcher will not randomly assign participants to each group (work groups exist yet). It is possible to match pairs (according to age, occupation, grade, length of job,...).

The following variables could be identified (Saunders et al., 2016, Burns, 2000):

* **Independent** (IV) – variable (the phenomenon or situation) that is being manipulated or changed by the researcher
* **Dependent** (DV) – variable that may change as a result of manipulation and measured by the researcher
* **Mediating** (MV) – variable located between the independent or dependent variables which explains the relationship between them

* **Moderator** – the factor which is measured or selected by the researcher to determine whether or not it changes the relationship between the IV and DV
* **Control** – additional observable and measurable variables that need to be constant to avoid them influencing the effect of the IV on the DV

### Survey

According to Fink (2003), a survey is a system for collecting information from or about people to describe, compare, or explain their knowledge, attitudes, behaviour. It is a common strategy in business and management research.

The survey allows the researcher to gather and analyse information by questioning individuals (concerning consumer satisfaction, job satisfaction, the use of specific services, management information systems, etc.).

The surveys are suitable for study relationships between specific variables. Data collected can be used to suggest possible reasons for particular relationships between variables and to produce models of these relationships.

The surveys tend to be used for exploratory and descriptive research using survey instruments as questionnaires, interviews, structured observations.

### Archival and documentary research

Within archival and documentary research, a wide range of available data sources could be in use:

* + personal sources – letters, social media, blogs, emails, diaries, notes
  + organisational sources - annual reports, company results, financial highlights, press release, reports, contracts, strategy documents, plans
  + government sources – publications, reports, national statistics
  + media sources – printed and online articles, videos, audio sources, etc.

Both quantitative and qualitative data are collected.

The data are collected from the secondary sources (originally created for different purpose), so that the problem is (quite often), that documents can vary in quality, some data may be missing or not presented in consistent way, etc.

### Case study

According to Yin (2014), case study investigates a contemporary phenomenon in-depth within its real-world context, especially when the boundaries between phenomenon and the context may not be clearly evident

Case study is a preferred method if:

* the main research questions are “how” or “why”,
* a researcher has little or no control over behavioural events,
* the focus of the study is a contemporary phenomenon,
* questions require an extensive and in-depth description of some social phenomenon.

The “case” in case study research may refer to a person (e.g. a manager), a group (e.g. a work team), an organisation (e.g. a business), a change process (e.g. restructuring a company), an event (e.g. an annual general meeting), etc. (Saunders et al., 2016)

Sekaran & Bougie (2016) speak about possibilities to use multiple methods of data collection and hypotheses developing.

Yin (2014) gives the following list of components of research design in case study research:

* a case study’s questions,
* its proposition, if any,
* its units of analysis,
* the logic linking the data to the propositions,
* criteria for interpreting the findings.

### Ethnography

Ethnography is used to study the culture or social world of a group. The aim is an explanation of behaviour of people in a certain context (situation).

The common use of ethnographic research is in anthropology, although social science research has increasingly adopted this method, which focuses on interpretations of behaviour or specific events in the everyday lives of individuals. (Pickard, 2013).

Ethnography is a subjective, qualitative process-oriented method. Research begins with no a priori assumptions (hypotheses). A huge amount of data is collected about specific people's behavior and its context, recorded and interpreted. The hypothesis "emerges" during the research. Induction is used.

Long-term observations or other field research techniques are used. The researcher is an external observer or a participant in the activity of the observed group.

### Action research

Action research is often undertaken by consultants to initiate change processes in organisations aimed at effecting planned changes.

The researcher begins with a problem that is identified and gathers relevant data to provide a tentative problem solution. After implementation of solution, effects of implementation are evaluated, defined and diagnosed and research continues until the problem is fully resolved. Realistic problem definition and creative ways of collecting data are critical for action research to be successful. (Sekaran & Bougie, 2016).

### Grounded theory

Grounded theory is a systematic set of procedures designed as qualitative research.

Trochim & Donelly (2008, p.284) describe the grounded theory as *“…iterative process directed toward the development of the theory describing or explaining phenomenon of interest”*

Charmaz (2006, p.20*) understand it as “…an approach that uses simultaneous data collection and analysis”.*

Important tools of grounded theory are theoretical sampling, coding, and constant comparison (new data with the developed theory).

### Narrative research

Narrative research uses such research context when the researcher believes that the experience of participants can be better analysed as a complete story, rather than collecting bits of data that flows from specific interview questions.

This kind of research reserves chronological connections and the sequences of event, using usually a small, purposive sample. The nature of research is intensive and time-consuming. (Saunders et al., 2016)

Coffey and Atkinson (1996) suggest a useful structure for facilitating of narratives using following questions:

* *What is the story about?*
* *What happened, to whom, whereabouts and why?*
* *What consequences arose from this?*
* *What is the significance of these events?*
* *What was the final outcome?*

# 5 Research Ethics

In the context of research, **ethics** refers to the appropriateness of the researcher behaviour in relation to the rights of those who become the subject of research or are affected by it.

According to Saunders et al. (2009), **research ethics** relates to questions about how to formulate and clarify research topic, how to design research and gain access, the methods for collecting, processing and storage of data, how to analyse data,

and how to write up research findings in a moral and responsible way.

RESPECT Code of Practice for Socio-Economic Research[[1]](#footnote-1) is based on a synthesis of the contents of a large number of existing professional and ethical codes of practice, together with current legal requirements in the EU. This code is based on three main principles:

* **Upholding scientific standards**

*„Researchers have a responsibility to take account of all relevant evidence and present it without omission, misrepresentation or deception.“*

* making sure that the selection and formulation of research questions, and design of research undertakings, does not predetermine an outcome, and does not exclude unwanted findings from the outset,
* data and information must not knowingly be fabricated, or manipulated in a way that might lead to distortion,
* responsibility of the researchers to balance the need for rigour and validity with a reflexive awareness of the impact of their own personal values on the research,
* the researchers primarily serve scholarly and public interests and economic gain, or material advantage should not override scholarly, public or ethical considerations.
* take account of the work of colleagues, and acknowledge fully any debts to previous research as a source of knowledge, data, concepts and methodology
* demonstrate an awareness of the limitations of the research,
* declare any conflict of interest that may arise in the research funding or design, or in the scientific evaluation of proposals or peer review of colleagues’ work
* ensure that research results are disseminated responsibly and in language that is appropriate and accessible to the target groups
* declare the source of funding in any communications about the research.
* **Compliance with law**
* the researchers have a duty to ensure that their work complies with any relevant legislation
* data protection law and intellectual property law are particularly relevant for the conduct of research, especially research involving human subjects, and the researchers should acquaint themselves with the relevant national and international provisions.
* **Avoidance of social and performance harm**
* results of socio-economic research should benefit society, either directly or by improving human knowledge and understanding
* the researchers should to avoid or minimize social harm to individuals or groups

# Summary

Research philosophies refer to the system of beliefs and assumptions about the development of knowledge, it means that the researcher’s philosophy contains his/her view on the world. All research philosophies make following types of assumptions – ontological, epistemological and axiological. Business and management research could be carried out applying philosophy of positivism, post-positivism (crititical realism), interpretivism or pragmatism.

There are three main research approaches to theory development – deduction, induction and abduction. With deduction approach, a theoretical framework and hypotheses are developed, and hypotheses are tested. With induction approach, data are collected and as a result, theory is developed. Abduction approach means that data are used to explore a phenomenon, patterns are identified, new or modified theory are generated and tested using additional data collection, and data analysis.

Research design is the way research questions and objectives are operationalised into a research project. Research design is the general plan of how to go about answering research questions, e.g. plan for the collection, measurement, and analysis of data to answer the research questions. Basic research approaches - deduction, induction and abduction imply research and methodological choice. Methodological choice then is about using a quantitative, qualitative or mixed methods research design. Choice of the research strategy (method) is guided by research questions and objectives. There are different methods for quantitative or qualitative research applied in business and management research. The most commonly used methods in business and management research are survey, case study, action or narrative research.

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1. <http://www.respectproject.org/code/respect_code.pdf> [↑](#footnote-ref-1)