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Operationalising Critical Realism for Case Study Research

Abstract

Purpose

Critical realism is an increasingly popular 'lens' through which complex events, entities and phenomena can be studied. Yet detailed operationalisations of critical realism are at present relatively scarce. Our objective here is built on existing debates by developing an *open systems model of reality*, a basis for designing appropriate, internally consistent methodologies.

Approach

We use a qualitative case study examining changing practices for client contact management in professional services firms during restrictions imposed by the COVID-19 crisis to show how the model can be operationalised across all stages of a research study.

Findings

Our study contributes to the literature on qualitative applications of critical realism by providing a detailed example of how the research paradigm influenced choices at every stage of the case study process.

Originality

More importantly, our model of reality as an open system provides a tool for other researchers to use in their own operationalisation of critical realism in a variety of different settings.

Key words

Critical realism, case study research, open system models, abduction, retroduction, thematic analysis, elements of reality, critical realist mechanisms

Introduction

Studying developments triggered by humans and their behaviour requires careful consideration on what truth is and how it can be assessed. Amongst different options, critical realism, based on the seminal works of Bhaskar (1978), is an increasingly popular choice (Williams, 2016), but not without challenges when it comes to research design and correctly identifying the elements of reality in critical realism (O'Mahoney and Vincent, 2014). In this article, we reflect on a study based on a critical realist stance and develop a model of reality as an open system and the determinants/components of structure in critical realism. In relation to this, we explore the methodological approach chosen based on critical realist ontology and epistemology, namely a qualitative case study.

Our aim is first to develop a model of critical realist reality that distils the main elements and acting forces defining and influencing structure, thus showing how what occurs is likely to be caused by a complex system of interacting forces. Second, we operationalise critical realism through a reflective process that maintains the critical realist focus on understanding rather than just describing a social reality (Vincent and O'Mahoney, 2016). We also explore abductive reasoning and why, in combination with retroduction, this research logic is best suited to identifying causal mechanisms behind the (visible) events under scrutiny.

First, we provide an overview of the study in question, which involved studying client contact management practices in a crisis. Next, we use a critical realist philosophical stance to develop an open system of reality and link this to the ensuing research strategy and design choices made. We include a specific example of application of the model and conclude with a discussion of our approach and its contribution to the literature on critical realism and case study research.

Overview of the Study

The study in question examined changing practices for client contact management in professional services firms during restrictions on personal contact imposed by the COVID-19 crisis. The aim was to explore how the crisis was experienced and what respondents learned for the future. Investigating communication in a crisis and the resulting changes in practice was a matter of social construction and personal interpretation by respondents. Yet, allowances were still required for an underlying reality, such as changes in the environment due to the pandemic. Therefore, a critical realist paradigm and abductive research logic were adopted.

The resulting research design was a sectoral case study of the consulting industry in the German speaking countries of Europe with semi-structured interviews as the main source of data. Early 'grey literature' publications on the topic, mainly from the industry under investigation, served as a secondary source. Data were structured and analysed using thematic analysis (following the approach of Braun and Clarke, 2006), investigating the emergence of improved practices around client communication in times of crises and ensuing changes in practices. The consulting industry was chosen because of it traditionally requiring close personal contact which was significantly disrupted during the period in question. The DACH region was chosen for pragmatic reasons of closeness an being a relatively homogeneous sub-region of Europe.

Thirteen qualitative, semi-structured interviews were conducted, with four in the pilot phase and the remainder thereafter. Thematic analysis was the method of analysis, and data were coded in two rounds, one of initial and one of axial coding, in order to allow arranging them into categories and subsequently themes. Using an extensive personal network, thirteen participants were recruited for the expected relevance of their information. In order to ensure variety, participants included consultants from different companies, different hierarchical levels and both genders.

Interviews were planned in a way that encouraged participants to get into a flow of speech to let topics emerge, "keep(ing) them talking" Outhwaite (1998, p.293). The questions also needed to be helpful in capturing and understanding emotions, a factor which also influences coding as described in section 5.7 (Kouamé and Liu, 2020). This led to a semi-structured design, also asking whether interviewees believed any topic or question to be missing and ensuring a conversational approach allowing to probe for informant reflexivity, an important goal of critical realist interviewing (Smith and Elger, 2014). Interviews were conducted electronically as personal meetings were not possible under the COVID-related restrictions in place. The first four were transcribed manually, the remainder using MS Teams functions. The interview yielded close to 7000 lines of transcription.

Modelling Critical Realist Reality

When studying a crisis and resulting emergence of improved practices, one is looking at peoples' beliefs based on their experience. Thus, reality, as experienced by interview respondents, springs foremost from their minds. According to Bhaskar (1978, 1998a, 1998b), however, a reality exists independently from the human mind. Therefore a purely social constructionist view (e.g. Berger (1966); Gergen (1992)) might not take into account economic

or even medical realities around the topic. Further, constructionist or interpretivist approaches may be prone to distorting effects or held back in their possibilities for interpretation through, for instance, ideology (Fleetwood, 2014).

Nevertheless, critical realism has been criticised for its detachment from values and thus the ideologically 'good' (Denzin and Lincoln, 2005). A thorough reflection on ones' own beliefs as a researcher is therefore critical if a study is to have meaning and validity. Guba and Lincoln (2005), setting qualitative work in a non-positivist environment, warned that any finding is open to challenge based on underlying paradigm. Yet reality is more complex. Reflections on the approach best start with a framework of what led to the methodology and methods used (Müller and Klein, 2019). Elements of ones' stance are interdependent throughout the different decisions that need to be made when designing a study – a rigorous approach requires such decisions to be made explicitly.

Making epistemology & ontology, the research question, data collection and analysis one system, taking into account interdependencies and influence between these aspects, can help (Sullivan, Gibson and Riley, 2012). The critical realist approach is still much discussed, it might "blur at the edges" (Elder-Vass and Morgan, 2022, p.216) and there are constant additions and new insights on how to apply it, also taking into account other ontological approaches such as processual ones (Rutzou and Elder-Vass, 2019). However, critical realism, as discussed below, offers an excellent way of designing a research project as a logical, harmonious and comprehensive whole. The next sections explore the philosophical approach and the research logic, then provide an overview of the resulting method and analysis of the data. This requires some initial reflections on the ontological basis.

Ontology and Critical Realism

When investigating experience and conclusions drawn thereupon, a researcher cannot look at statistics and hard figures to arrive at a system of principles that can be applied. Social dynamics resulting from human interaction are a result of personal interpretation, and all claims and beliefs relate to social and cultural influences (Smith, 2005). This means that one cannot 'know' in detail what determines the outcome of a piece of research (Noonan, 2008). Reality is therefore not a fixed object, which has implications for both research strategy and design.

The above stance is a relativist ontology, which Rashid *et al.* (2019) argue is a prerequisite for a qualitative study. Dogmatic relativism, however, means no 'universal truth' exists at all (Smith, 2005, p. 750). Critical realist thinking suggests that reality is not reduced to how one

finds out about it (Fletcher, 2016). Reality is possible, even if one accepts that human experience and the rendering of it is a social product (Bhaskar, 1998a). Neorealist authors (e.g. Hammersley (1990, 2013)) avoid 'classical' realism, which rejects the relativist view and see results as relative to particular social and/or cultural practices, using plausibility and credibility as criteria for evaluating research (Williams, 2016).

All researchers seek to find what is 'real' and 'true', but opinion differs on what that means (Edwards, O'Mahoney and Vincent, 2014b). Further, some suggest 'truth' does not exist, its definition bound by social conventions of the person interpreting it (Gergen and Thatchenkery, 2004). Subjectivist approaches dominate qualitative research (Ratner, 2005) and tend to claim that one cannot know what is real. Critical realism offers a way out of this dilemma by accepting the 'ontological drift' between what is physically and socially real (Archer, 1998b, p. 189), and acknowledging that even the social world does not depend entirely on what people think and do (Groff, 2000). Critical realism therefore offers a rich potential for numerous purposes.

Reality as an Open System

Bhaskar (1998b) describes reality as an 'open system', i.e. not a one-to-one relationship between what occurs and a cause but as the result of the interaction of many factors (Wynn and Williams, 2012). Thinking along this system helps understanding the underlying reality (the domain of the 'real') through visible events (the 'actual') which in turn are experienced (and interpreted) by humans (the domain of the 'empirical') in a 'stratified' view of reality and how it is accessible (Bhaskar, 1978; Edwards, O'Mahoney and Vincent, 2014a). This stratified view can also help establishing a systems view of the different elements of reality (Armstrong, 2019). We develop a model of this reality system based on a synthesis of influential critical realist writings (see figure 1) and will detail its development below.

INSERT FIGURE 1

Critical realism has features in common with constructionist/post-modernist views (Gray, 2014; Madill, Jordan and Shirley, 2000), but suggests that there is a visible reality that exists. Bhaskar (1998b) suggests the existence of real things existing in a world without humans, thus not dependent on being socially constructed, and proposes the aforementioned 'strata' of reality. Thus 'real', in a critical realist world, is determined by causal structures or generating factors, which then give rise to empirical events (Groff, 2000) from which one could assume preconditions to be present (Archer, 1998b). Causal powers emerge because the structure is

organised in the one specific way which triggers a result. Elder Vass gives the example of a queue which works as a mechanism for access to a resource only because it is organised as a queue (Rutzou and Elder-Vass, 2019). This example also helps to illustrate the influence of other shaping elements such as culture and rules – queues do not work and form in the same way in different cultural environments. According to Outhwaite (1998), from an ontological point of view, social reality is:

- Intransitive, existing independently of descriptions or observation. This is the basis of being able to explain social matters (Archer, 1998b)
- Characterised by relatively enduring underlying mechanisms ('transfactual'), which makes a story behind observations possible, and
- Stratified according to Bhaskar's levels of reality,

all the while subject to being changed by agents, who do not necessarily create but transform or reproduce (Fleetwood, 2014). Agents may or may not be aware of underlying structures that govern their actions, but nonetheless are 'real' (Outhwaite, 1998). Critical realism views interaction between agents as a primary 'mechanism' for change ('mechanisms' causing the visible 'events'), but they also form stability via 'structures' (Ryan *et al.*, 2012).

These structures, including their components (sub-structures, rules and practices as well as discursive entities (Archer, 1998b)) plus additional – material or immaterial – 'essences' (Bhaskar, 1998b) form the body of the so-called 'entities' which can generate or trigger mechanisms. By exploring social structures allowing for the actions of agents, critical realism rejects static and a-historic interpretations of social phenomena (Kaidesoja, 2009; Archer and Morgan, 2020). While agency is not determined by structure (Bhaskar, 1978), all entities can shape agency so that action and structure presuppose each other (Archer, 2010). Entities like structures can have causal power, but this depends on the given context – they create effects by being organised in just the way they are, which can make interpretation difficult (Elder-Vass, 2010). Not only the properties but also relationship between the elements of reality are relevant.

The above shows that research depends on our values and stance and knowledge is therefore relative to the people involved, their culture and surroundings (Williams, Rycroft-Malone and Burton, 2016; Bhaskar, 2008b). So is any learning process such as the development of improved practices, but there is also causality based on real occurrences and real experience: the social world is based on the physical, and the social constructions interact with it. Such

mechanisms find specific use in research, for instance in an analytical tool for realist interviews (Mukumbang *et al.*, 2020).

This interaction makes reality said 'open system' (Bhaskar, 1998b), and structure, in turn, can also influence mechanisms (O'Mahoney and Vincent, 2014). This is also a cyclical process, newly emerged structures will for instances contributing to the next set of changes (Archer and Morgan, 2020), interacting with cultural elements, rules, practices, or valiúes, all socially constructed (Elder-Vass, 2019). Which phenomenon pertains to which element of reality is, however, difficult to determine and might depend on which influences of it are being scrutinised. An example of critical realist research in Fletcher (2016) shows that something can be an entity, but at the same time a component to another structure, witness the Canadian agricultural sector, the farms within and the individual farm workers, who can also act as agents. Hoddy (2019) directly relates mechanisms (and the resulting events and experiences), to the three Bhaskarian levels of reality, and to this system, authors like Fleetwood (2014) and Archer (1998a, 2010, 2011) add transforming actions by agents, leading to the overview in figure 1.

The (causal) mechanisms, which critical realist research is investigating, together with events and experiences are related to the three domains of reality (Bhaskar, 1998b). Fletcher (2016) uses an iceberg metaphor where only experiences, thus the empirical, are visible, and reinforces the idea that, unlike in nature, social structures and activity are interdependent. Starting from the sociological research problem that humans constitute society, which in turn forms said humans, Archer (2010) shows that these ('morphogenetic') cyclical interchanges as described in the figure above are constantly changing and endless, while allowing for basic structural properties integral to the social constitution (see also Archer, 2003; Archer and Morgan, 2020).

A central conclusion is that reality is a dynamic process (Noonan, 2008) one cannot fully document, but it is possible to learn from observations and earlier occurrences. Identifying structures is difficult (Bhaskar, 1998b), but explanation is possible. Conclusions may not, however, be universal and results must be seen in context. Therefore accepting an independent reality and trying to reconcile real and constructed domains, the empirical, actual and real strata (Clark, 2008), acknowledges the impossibility of ever being certain.

Critical Realism, however, goes beyond ontology (Fleetwood, 2014). Choosing the right approaches to analysis is therefore crucial, as is reflexivity (Fletcher, 2016; Sobh and Perry, 2006). As Outhwaite (1987) remarks: while critical realism is bold ontologically, it is epistemologically cautious.

Epistemological Implications and Abductive Research Logic

While theory might be relative to subjective interpretation, real structures in critical realism are not (Groff, 2000). The question is how to bring generative elements to light (Outhwaite, 1998) taking different concepts of interpretation into account. This contrasts with approaches such as interpretivism, accepting knowledge only through studying humans from the 'inside' (Fleetwood, 2014p. 182). Others such as social constructionism or postmodernism focus entirely on social knowledge dependent on its identification – or fabrication – by individuals (Henningk, Hutter and Bailey, 2020).

Critical realism combines both positivist and subjectivist approaches, positioning itself between those two (Taylor, 2018). Even if part of reality is not socially constructed, however, when one researches, it is done in a 'value laden' way (Bhaskar, 1978). Therefore, critical realist epistemology is closer to the subjective approach, which permits opinion, attributed meanings and contextual interpretation as well as entailing a reflexive axiology.

Alternatively, one could simply adopt pragmatism. Calls exist for critical realists to engage thoroughly with pragmatist approaches when presenting their own solution (Smith, 2013), and some beliefs are similar, e.g. that both real and constructed phenomena exist. Pragmatism, however, emphasises that truth in pragmatism is only what 'matters' or has an effect (Williams (2016). Further, examples show that pragmatist researchers have a wide margin of choice of methodology and methods, making rationales over being likely to produce the desired results difficult (Kaushik, Walsh and Lai, 2019).

Complex and constantly changing reality means that critical realist research can be viewed as 'modified objectivist' (Healy and Perry, 2000p. 1195), i.e. findings are only likely to be true and the world is only apprehensible using probabilities, not necessarily statistical ones. Reality is determined by multiple factors, thus one can only look for potential mechanisms (O'Mahoney and Vincent, 2014), and while critical realist researchers are value aware (Healy and Perry, 2000), they must work cautiously, be aware that some observations might be illusions or certain facts cannot be observed , taking many potential causal powers, dependencies and relationships into account (O'Mahoney and Vincent, 2014).

The epistemological view in critical realism is therefore a 'stratified' one, following the aforementioned recommendations along the three domains (Edwards, O'Mahoney and Vincent, 2014a). Objectivism can be applied, but only to the domain of the actual (what occurs) and the real domains. Where aspects of these domains become visible, objectivist research becomes

possible (Vincent and O'Mahoney, 2016). This does not apply to the realm of the empirical, and thus the differences between natural and social reality are being taken into account (Archer, 1998b). The distinction between the domains also is relevant when finalising, for instance, interview questions (Mukumbang *et al.*, 2020).

There are other caveats. Because Bhaskar believes in a reality independent of empirical observation (a transcendental one), critical realists are bound to research using transcendental analysis (Kaidesoja, 2009). This means using the agents' conception of phenomena, then from this infer conditions for the said phenomena. Kaidesoja concludes that in addition to that, some patterns – empirical regularities – can be found by other means of analysis, sometimes even statistical, in order to become less abstract. Thus, at least some triangulation might be necessary, adding rigour, and recent approaches of critical realist research describe a wide variety of potential methods for gathering and analysing data (O'Mahoney and Vincent, 2014). Interaction between agents and social 'subsystems' also needs to be considered, which can be taken as involving any stakeholders in an organisation (Kaidesoja, 2009).

From these reflections follows that applying a critical realist paradigm in epistemology will require caution and thoroughness. In a comparison with a constructionist paradigm, Taylor (2018) warns that while a critical realist stance may help to exclude the danger of dogmatism inherent to social constructionism, the researcher will need to make sure not to get wrong what is real. People are under the constraints of a real world, physically and socially, and realities cannot be fully construed – and what belongs to which domain? On top of that, the 'real' can change, there are transitive elements to knowledge (Bhaskar, 1998b), the already described 'agents' transform things – and there is even a 'social real' (Fleetwood, 2014, p. 191).

Knowledge also has both transitive and intransitive ('real') elements, of which intransitive elements of knowledge are beyond human influence (Bhaskar, 1998b; Bhaskar, 1978). With critical realism moving towards a naturalised version, semi-transitive elements have been added and there is a distinction between human influence and knowledge as ontological and epistemological dimensions (Modell, 2023). Critical realist research tries to explain rather than predict (Wynn and Williams, 2012), acknowledging the value of subjective relation and interpretation by the actors. Outhwaite (1998) only sees knowledge emerge when there is no better alternative to an explanation. However, when there are multiple possible explanations, one can check for the one with the best explanatory power, but this is obviously a matter of judgement (Wynn and Williams, 2012).

So, critical realist research is challenging, but it thoroughly looks for causalities instead of simply acknowledging experiences, and it helps understanding complexity (Williams, Rycroft-Malone and Burton, 2016). Interpreting data in critical realism takes all aspects of social structure into account, including emotions, important in social research – especially so in the example study as it deals with a crisis, a highly emotional event.

When looking at phenomena like crisis management and communication, one is exploring, describing and, where possible, looking for explanation. Especially in cases where there is not enough material available to be able to formulate hypotheses or promulgate theories, a deductive approach will not work. As viewpoints are in the focus of the analysis, an inductive one might also frequently not be appropriate. This already speaks for adopting abduction as a research logic in many cases of critical realist research (Rashid *et al.*, 2019).

Critical realists abandon the typical inductive/deductive theory-observation model and, among other things, explore in order to be able to find and explain generative mechanisms (Outhwaite, 1998). Fittingly, abduction, in its 'modern' definition (Douven, 2017), gives 'best explanations' for phenomena determined through, in a research project, data collection. Theoretical frameworks evolve with the research undertaking, and rich descriptions will lead to interpretation and explanation (Rashid *et al.*, 2019). While there is also criticism – Awuzie and McDermott (2017) give examples amongst which abduction being likened to guesswork is the most prominent – the same authors show in a persuasive way that they did come up with a good evaluation of a new infrastructure systems' viability, based upon abductive reasoning, and there is more evidence that abduction helps to build a bridge between the data and the explanation of behaviour or theory (Eriksson and Engström, 2021).

Creswell (2006) argues, that one of the issues with qualitative research is the lack of guidelines or procedures, but a domain-wise selective objective/subjective critical realist approach (what Vincent and O'Mahoney (2016, p. 2) call the 'odd dualism' in Critical Realism) with an abductive logic provides an anchor for what comes next. However, critical realist research requires an additional retroductive stage based on the results of abductive thinking. Retroduction tries to identify the causal powers and tendencies that have generated the research objects, and includes the relationships of such powers into the analysis, thus being placed at the core of critical realist generation of knowledge (Wynn and Williams, 2012).

Retroduction helps identify the 'mechanisms' in critical realism (Ryan *et al.*, 2012), and for Fletcher (2016), abduction is 'theoretical retroduction', asking for the cause (e.g. an event),

with retroduction looking, in a sort of metacausal research, for the underlying mechanisms by searching for the conditions in which such mechanism can take effect. Marks and O'Mahoney (2014) formulate this as asking what must be the case so that the findings of the research could actually be possible, a formal step in any critical realist study looking for causal mechanisms (Hoddy, 2019).

This means, that a researcher not only looks at regularities but also at where these apply – if context changes or is misunderstood, regularities such as 'what works?' do not necessarily apply anymore. 'Like produces like' only works if the structure around it is or stays the same, and while the mechanisms are what takes an effect (O'Mahoney and Vincent, 2014), the context (structure) determines the outcome and has therefore to be taken into account (Tilley, 2000). Absences of certain aspects might also be important, they may even have real effects (Bhaskar, 2008b). Understanding why something has not happened or was not mentioned may be as important as actual occurrences: for example, Bengtsson and Fynbo (2017) show this when analysing underlying complex power structures.

Ensuing Research Strategy and Design Options

In this section we discuss our application of the open systems model of reality to a qualitative case study. We are keen to acknowledge, however, that critical realism is pluralist and inclusive when it comes to methodology, as long as the commitment to the concept of emergence is visible (Hoddy, 2019). In this spirit we present one possible operationalisation of our model below.

A Qualitative Approach using Case Study as the Method

Qualitative research design is often presented as inevitable in paradigms such as critical realism (e.g. Howitt, 2010). While quality criteria might differ depending on the epistemological stance, however, there is a place for quantitative approaches in critical realism as well (Healy and Perry, 2000). While some researchers even see a pro-quantitative bias in research and attribute it to qualitative studies exposing a high level of complexity (Brown, 2010), we suggest that such complexity is needed in order to fully understand a situation. Thus, a qualitative approach was adopted in the example study.

In addition to that, the quality criteria for qualitative work must be taken into account. We used as a starting point the seminal work of Lincoln and Guba (1985) and the following four criteria:

- Credibility: 'do results reflect the truth?' – as far as possible, as any explanation of the truth is fallible (Fletcher, 2016)
- Transferability/applicability: findings have to be applicable in similar contexts
- Dependability/consistency: given a similar environment, findings can be repeated
- Confirmability/neutrality: results must come from the research objects, without distortion

Healy and Perry (2000) establish a set of critical realism related criteria overlapping, however, with most of the above criteria and advocate using triangulation, not always possible, however. Sobh and Perry (2006) add that this can at least in part be achieved by asking different questions, to which one can add asking different or different types of people as was done in the study. Case Study research was the most appropriate design for a number of reasons: it is useful in providing understanding about an issue and might allow some form of generalisation (Stake, 2005) and it is an appropriate choice when focused on the contemporary and the researcher has no control over the events (Yin, 2018).

Such research does not necessarily have to be exploratory; descriptive and, where possible, explanatory aims of the study can well be reached and it fits 'how' and 'why' questions as well as 'how do' ones (Rashid *et al.*, 2019). This links well into typical questions in critical realist research (Edwards, O'Mahoney and Vincent, 2014a). Further, certain case study techniques offer excellent responses to quality and validity considerations in critical realist approaches (Healy and Perry, 2000).

Case study research, by focusing on detailed description through an iterative process to understand social phenomena in terms of what people do and think, lends itself well to an abductive research logic (Rashid *et al.*, 2019). This is detailed by Dubois and Gadde (2002), who refer to their abductive approach as 'systematic combining' (p. 555), matching and re-matching case, framework and empirical world, directing and redirecting a study accordingly – useful for critical realist approaches (O'Mahoney and Vincent, 2014).

Potential bias can be minimised by using falsification logic, different data sources or triangulation (Teegavarapu, Summers and Mocko, 2008). Some issues remained, for instance being a consultant researching consultancies could lead to biased interpretations. Indeed, studying what one knows well carries the risk of self-involvement, lack of distance and using prefabricated opinions (Berger, 2015). On the other hand, because any knowledge, according to critical realism, is theory-laden, a researcher may use own experience as a source of data

(Ryan *et al.*, 2012). To address these potential issues, a reflexive journal was used throughout the study.

Data Collection Through Interviews

Data collection had to fit a 'detached' approach of case study research (Vincent and O'Mahoney, 2016) and there are a number of alternative sources of evidence, amongst which interviewing is prominent and especially useful when subjective viewpoints have to be analysed (Flick, 2002). While not without risks around situation and interviewer influence (Baker and Edwards, 2012; Potter and Hepburn, 2005), this can be addressed by careful design. The potential 'co-constructed' character of interviewing has an influence on validity, this is, however, a question of degree (Hammersley, 2013a) and can be tackled by taking oneself back as much as possible as an interviewer (King and Hugh-Jones, 2019).

Interviewing is widely used in critical realist work (Smith and Elger, 2014): interviews open access to rich information on events, experiences and underlying phenomena. With these arguments in mind, we adopted qualitative semi-structured interviews as the main data collection method.

Looking for Patterns – Options Around Analysis and Coding

Baptiste (2001) describes tagging the data as the start of the analysis phase in qualitative research, then grouping these 'tags' or codes into 'themes'. This 'thematic analysis' (TA) became an established method with the seminal article by Braun and Clarke (2006) and looks for patterns, which critical realist research turns around identifying and explaining (O'Mahoney and Vincent, 2014), looking for 'demi-regularities' (Fletcher, 2016). TA is very flexible and compatible with critical realism (Braun and Clarke, 2022) where any result can only be a probable one anyway (O'Mahoney and Vincent, 2014).

Consequently, although Karlsson and Ackroyd (2014) deplore a lack of methodology clearly assigned to critical realism, TA is a suitable method of analysis and the answers to research question can be looked for by searching for themes and their describing and defining factors, or 'categories' (Vaismoradi *et al.*, 2016). Before finalising the themes, codes are grouped into topic domains or 'sub-themes' to be aggregated to form the final themes. For a critical realist, it is important to see that, as Braun and Clarke (2006, 2013, 2018) emphasise, themes do not emerge. They depend on their conceptualisation by the researcher and the research focus, and thus are **created** from the data. The emergence of findings thus happens **from** the themes, not **as** the themes (Braun, Clarke and Rance, 2014; Braun and Clarke, 2019a).

Braun and Clarke later refined the method, defined three approaches amongst which reflexive TA, with an open and flexible approach to generating codes (Braun and Clarke, 2018). This approach is recommended especially when searching for so-called latent themes, but also in general because of it leaving more room for interpretation and the search for meaning beyond the obvious (Braun and Clarke, 2019b). Reflexive TA is therefore the approach best fitting the typical critical realist investigation for demi-regularities.

When familiarising with the data, coding is a crucial step and needs to fit epistemology and methodology. Saldaña (2016) sees it as a heuristic exercise, assigning describing tags, 'codes', to chunks of the data analysed, with the aim to be able to define categories and ultimately themes. While coding carries the danger of becoming mechanistic in an analysis, it is a tried way of getting to themes (Braun and Clarke, 2018) and reflexivity can help to address many of the issues. Amongst the coding methods available, it was necessary to find one responding to the openness critical realist research advocates (Hoddy, 2019). Initial or open coding is a fitting choice for many a critical realist study (Charmaz, 2014) and was chosen for the example. It divides data into chunks it then examines and compares, even allowing the use of other coding methods within. It therefore also follows what Hedlund-DeWitt (2013) believe to be a good approach to analysing qualitative data: taking a first, inductive step – which, however, is then to be followed by a second, deductive (or for critical realists abductive) one.

Because of the critical realist focus on looking for regularities on one hand, deeper meaning on the other, the open coding approach, a second cycle of axial coding is a suitable option (Hoddy, 2019). Axial coding looks for data fitting categories or sub-categories (the 'axes') deriving from earlier stages of analysis. Sobh and Perry (2006) even believe that as in critical realism codes are rather generated from the conceptual framework, a single axial coding cycle can suffice. Yet, this would mean that the axes only stem from the framework, which in turn might narrow the choices down as compared to having a first coding cycle as an additional source and not all patterns or axes can be found in the conceptual framework. Two coding cycles thus can lead to more comprehensive results.

When following a critical realist approach with an abductive logic, re-grouping and re-assessing of elements from the data helps, especially as critical realist coding needs to draw on finding reasons, not on existing theory (Fletcher, 2016). Looking for categories and 'parent codes' fits the TA investigation for patterns of shared meaning from which themes can be developed (Braun, Clarke and Rance, 2014). These can be analysed for the existence of summary themes,

in a combined initial/axial approach an outcome of the first coding cycle. This approach therefore takes the requirements of both critical realism and TA into account.

Research Stages

The study was designed as a 'no theory first' case study (Ridder, 2017), and the formal stages of a critical realist project consist of building an initial description of the research object as far as can be done through literature or other initial research, then moving on to data research design and conduction (Hoddy, 2019). Based on these sources, a researcher will then seek trends and patterns. While critical realist research bases findings on qualitative data and does not focus on empirical/statistical causality (Roberts, 2014), some figure-based analysis may be used in order to explain phenomena and could enhance generalisability (Wynn and Williams, 2012). If applicable, theory building will also happen in this stage (Sobh and Perry, 2006).

The results, following the critical realist principle of deep explication of structure, events and context (Wynn and Williams, 2012) is then used in the next stage of abductive and retroductive analysis, and finally of concretisation and contextualisation, including validation (Hoddy, 2019). For the analytical stage, Teegavarapu, Summers and Mocko (2008) suggest findings should be tested against rival theories – or alternatives from different ontological positions (O'Mahoney in Rutzou, 2016). While this might add time consuming complexity, it answers the requirements of corroboration and validation within critical realist methodological principles (Wynn and Williams, 2012). This supports an explorative orientation typical for critical realist research. In the example study of crisis management, it is going from 'what is X' to 'how does it work and why' (O'Mahoney and Vincent, 2014, p.9). The critical realist interview takes into account the formula from Pawson and Tilley (1997): *Mechanism* + *Context* = *Outcome* and uses the view of the open system of reality as a guideline for analysis.

Given that TA was chosen as the method of analysis, research stages also took account of the phases of this method (see Braun and Clarke, 2006). Integrating these into what stems from the aforementioned approaches for research design, the stage model shown in table 1 was developed:

INSERT TABLE 2

Staying Critical Realist Throughout

One of the challenges in critical realism is the correct identification and labelling of all the strata and elements of reality such as entities, properties, causal mechanisms and so on, a prerequisite for being able to actually apply critical realism thinking (Vincent and O'Mahoney, 2016). There are many commentaries on the initial works of Bhaskar, which has evolved itself since it was first published (Bhaskar, 2008a). Others give examples of application or add reflections on agency and its influences on social structure as well as reflexivity (e.g. Archer, 2003; Archer and Morgan, 2020). To achieve the aim of being clear about the critical realist elements of reality, the example study referred to these throughout, striving to making clear what findings, ideas, occurrences, structures and people pertain to. Further, before analysing data and grouping relevant themes, it was necessary to reflect which topics were to be distilled from the data. To this end, and bearing the research question in mind, open points from the literature research were mapped with the elements of reality.

This means that the questions pertaining to the research question which the literature had no answer for and which were listed at the end of the literature research sections were then held against the elements of reality as shown in figure 1. The aim of this was to better understand in which of these elements answers to these questions could be expected to emerge. An example of this mapping, using some of the results of the literature research of the study, is provided in table 2. The open questions were grouped by topic, then put in relation to the reality elements as used in our model. Finally, we tried to assess in how far the questions and related elements were relevant when answering the research questions.

INSERT TABLE 2

This approach allowed us to define themes that helped answer the questions and identify which elements of reality they pertained to. While mechanisms nearly always play an underlying role, crosses in this matrix mean a focus in the investigation of a topic and/or an expectation to be able to identify mechanisms directly. Critically, this process allowed us to identify how, and ideally why, themes influence the structure under investigation. Thus, experiences and events described in the data as well as information on additional structure, rules and practices, plus interpretation of the language (explicit and implicit) were expected to lead to understanding the interaction of these elements and what they triggered around the management decisions the study investigated.

In line with the abductive logic discussed above, this matrix was then used to determine in which areas themes might be defined, data permitting. Of course, it could not be ruled out that the data also contained relevant information on topics not apparent before, and from the early stages of the analysis on, emergent information from the data was placed in a separate group, labelled 'miscellaneous' as proposed by Braun and Clarke (2006). Interim results of the ensuing analysis were then mapped against the topics from the open points from the literature review. These results were grouped and then defined as themes and sub-themes.

An Example for the Application of the Model of Reality as an Open System

The following example is designed to illustrate the process of explaining emerging elements or changes in existing ones by applying the model. As a starting point, an initial detailed description of the context is recommended in critical realist research (Wynn and Williams, 2012), and a deep understanding of the structural starting point of the analysis will help identify changes. Descriptions may have to be empirical as for instance within a group of items under scrutiny – in this case of a sectoral study different consultancies or even different parts of the same consultancy – can act and look differently. However, the context needs to be understood, which is why the study contained a thorough description of pre-COVID structures and client-consultant communication and co-operation practices.

We started by trying to allocate findings to the elements of reality, as discussed, a challenging exercise (Vincent and O'Mahoney, 2016). Is the fact that mixed client-consulting teams cannot work in a common office anymore but stay in their offices or even at home, networking and co-creating content through electronic means of communication, an event, a sub-structure or a structure? Believing that taking all findings into account when abductively searching for underlying reasons, we decided to take a pragmatic approach, allocation some phenomena to more than one element, at the very least in order to be able to assess their effect from different standpoints, but also because in some instances, one finding can indeed pertain to more than one element of reality, depending on the standpoint (e.g. Fletcher, 2016).

Table 2

shows how we then used the model in order to illustrate findings we considered to be emerging structural changes. This could only be done change by change, fitting all the elements of the study into one model would have been so complex as to be confusing rather than helpful. We did find overlaps and used many findings in more than one application of the model, but this was to be expected in a complex reality. In this illustration, we use the finding that some

consultancies built structures designed to help clients cope with the challenges of having to co-operate vial electronic means at very short notice, as lockdown rules did not permit personal interactions anymore.

The actual implementation varied from case to case, from formalized structures with training, documentation and dedicated staff to informal ones at project level, depending on criteria such as the level of client preparation and skills or resources available at the consultancy. All these structures and related sub-structures (e.g., at team or project level) served, however, the same aims: to enable the clients to take advantage of the better preparation, skill level and infrastructure of the consultancies (as was the case with nearly all companies the consultants worked with) in order to be able to continue working on ongoing projects as seamlessly as possible. Shaping these solutions were sub-structural elements such as organization and staff as well as rules and regulations, e.g., around contact restrictions, data security or software licensing issues.

Discursive entities, however, also had a great influence, albeit with difficulties as language and culture differed between client and consultant. Even so, at project level a common understanding was reached more quickly and easily, and cultural elements such as the understanding of how much co-creation and interaction was desirable in a project. This contextual element of project management best practices not only was believed to led to better solutions and less resistance to the changes a project entailed, it also carried advantages for the consultancies – the more a client was involved, the less many consultants expected clients to blame consultants in the case of the projects' results being judged insufficient or unsatisfactory at a later stage. Hedging mechanisms such as this also were described as cultural elements of long standing in the industry.

Events such as the actual rendering of support to the clients and the implementation of the necessary communication infrastructure and process were assessed very favourably by the consultants, even though it meant additional work – the benefits were clear. This was not the case with all the clients. While the need to continue working on most projects was an obvious mechanism triggering the events, there were less visible elements present which also shaped the selected solutions. Some consultants, for instance, experienced reluctance or sluggish support from some clients, which also was mirrored by low attendance at training sessions. Applying abductive reasoning to these findings, the authors believed that the likeliest underlying reasons, thus mechanisms, were the reluctance by client managers to show inept when asked to use new tools in front of their subordinates or a general hostility to allowing

remote working, probably due to a fear of loss of control. This could only be supposed at the time of the finalization of the study but was later substantiated by post-study probing interviews by the authors. This illustrates how elements of reality can both support but also impede developments, an aspect which is useful to take into account, as well as the importance of – even inconspicuous – absences (Bhaskar, 2008b).

INSERT FIGURE 2

This is only an excerpt and for the sake of clarity, figure 2 only lists the main elements of reality pertaining to the new client-supporting structures which emerged in the early months of the COVID-19-related constraints. Notwithstanding, this example illustrates how, by allocating all findings which could be extracted from the data to the elements of reality in the model, a researcher can, in a structured way, make sure to take a large number of factors into account when analysing the findings and methodically forage for hidden facts and causal powers. The model helps understanding how the elements interact and what they influence, and applying it automatically yields insight into how in this open system, change triggers further change, also illustrating the historicity in any critical realist analysis going both ways (Archer and Morgan, 2020). It also helps to explain how and why this happens as well and may allow make educated guesses about the future. This analysis' emerged structure may be the next ones' mechanism. To give an example, the study discussed here yielded that the structure built to help in an emergency for some consultancies developed into a market offering, and it allowed an assessment as to how much of the changes would remain in a post-COVID world but also which of these might later be challenged again, e.g., for reasons of managers trying to regain control or all participants deploring the loss of important non-verbal parts of communication. Some of these were already confirmed by time (Erdsiek, Oppel and Bräutigam, 2023; Ng and Stanton, 2023).Many of the steps and decisions described above were based on examples from critical realist research (e.g. Edwards, O'Mahoney and Vincent (2014b). Other suggestions stemmed from the literature used for the present article as well as blogs and interviews and the Critical Realist Network web page. One point, however, was always borne in mind: whether there are alternatives to ones' findings and interpretation as well as the results alternative approaches might yield.

Conclusion

In this article we have described the different stages of a completed research process, and presented reasoning for decisions on paradigm and research design. Because of the view of reality based on the critical realist paradigm, the research design is important for the development of knowledge, and the example study lent itself to describing a thorough and comprehensive critical realist research approach to a case study. While a number of works exist dealing with applying critical realism (e.g. Edwards, O'Mahoney and Vincent, 2014b; Karlsson and Ackroyd, 2014), publications on operationalisation using specific examples are scarce. Important inspiration for critical realist studies can also be drawn from sources on validity, analysis or research design (Healy and Perry, 2000; Sobh and Perry, 2006; O'Mahoney and Vincent, 2014), but the present work is adds to existing studies where reflections around design, data gathering and analysis are described using examples.

This article also complements existing work on the influence of research paradigm on the detailed design of any research or data gathering, especially around case studies using interviews (Wolgemuth *et al.*, 2014). Moreover, our open system model of reality provides a tool for researchers looking to operationalise critical realism. This model synthesises a number of sources and illustrates interdependencies of its elements and the (sometimes) mutual exertion of influence, thus providing a framework making it easier for the researcher to explore structures, entities, rules, mechanisms, events, experiences or agents and agency phenomena. Understanding what pertains to what is central to understanding the causalities critical realism is looking for, an important quality criterion (Vincent and O'Mahoney, 2016). Furthermore, the model extends beyond the intervention-actor-mechanism-outcome analytic tool for research using realist interviews as a source of data, thus supporting analysis taking additional factors into account. Overall, our model of reality in critical realism offers a comprehensive view of critical realism at a glance.

It is, however, only a simplified view and cannot be applied without a detailed understanding of how the different elements actually interact. Looking at morphogenesis, according to Archer (2011) the 'explanatory framework' of critical realism, can provide guidelines for explanation of the identified phenomena. Finally, the importance of context cannot be forgotten; in a world changing at an ever increasing pace, a stable context is unlikely (Archer, 2016). The example study is also only one example, and the model should in future be extended to the analysis of further studies based on this paradigm.

References

Archer, M. (1998a) *Critical Realism: Essential Readings.* Routledge.

Archer, M. (1998b) 'Realism in the Social Sciences', in Archer, M., Bhaskar, R., Collier, A., Lawson, T. and Norrie, A. (eds.) *Critical Realism - Essential Readings*. London and New York: Routledge, pp. 189-205.

Archer, M. (2010) 'Morphogenesis versus structuration: on combining structure and action', *The British Journal of Sociology,* Vol. 61, pp. 225-252.

Archer, M. (2011) 'Morphogenesis: Realism's explanatory framework', *Sociological Realism*, pp. 59-94.

Archer, M. (2016) 'Does Social Morphogenesis Threaten the Rule of Law?', in Archer, M. (ed.) *Morphogenesis and the Crisis of Normativity*: Springer International Publishing Switzerland, pp. 1-28.

Archer, M. and Morgan, J. (2020) 'Contributions to realist social theory: an interview with Margaret S. Archer', *Journal of Critical Realism,* 19, pp. 179-200.

Archer, M. S. (2003) *Structure, Agency and the Internal Conversation.* Cambridge: Cambridge University Press.

Armstrong, R. (2019) 'Critical realism and performance measurement and management', *Management Research Review,* 42(5), pp. 568-585.

Awuzie, B. O. and McDermott, P. (2017) 'An abductive approach to qualitative built environment research: A viable system methodological exposé', *Qualitative Research Journal,* 17, pp. 356-372.

Baker, S. E. and Edwards, R. (2012) *How many qualitative interviews is enough? Expert voices and early career reflections on sampling and cases in qualitative research* [Working Paper]: NCRM and ESRC. Available at: https://eprints.soton.ac.uk/336913/.

Baptiste, I. (2001) 'Qualitative Data Analysis: Common Phases, Strategic Differences', *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research [On-line Journal],* Vol. 2(3), pp. 2-14.

Bengtsson, T. T. and Fynbo, L. (2017) 'Analysing the significance of silence in qualitative interviewing: questioning and shifting power relations', *Qualitative Research,* 18(1), pp. 19-35.

Berger, P. L., Thomas (1966) *The Social Construction of Reality.* 1st edn. London: Penguin.

Berger, R. (2015) 'Now I see it, now I don't: researcher's position and reflexivity in qualitative research', *Qualitative Research,* 15(2), pp. 219-234.

Bhaskar, R. (1978) *A Realist Theory of Science.* Routledge.

Bhaskar, R. (1998a) 'Critical realism and dialectic', in Archer, M.S. (ed.) *Critical Realism: Essential Readings*: Routledge, pp. 575-640.

Bhaskar, R. (1998b) 'Philosophy and scientific realism', in Archer, M.S. (ed.) *Critical Realism: Essential Readings*: Routledge, pp. 16-47.

Bhaskar, R. (2008a) *Dialectic: the pulse of freedom.* Routledge, p. 456.

Bhaskar, R. (2008b) *A Realist Theory of Science With a New Introduction.* 1st edn.: Routledge.

Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology,* 3, pp. 77-101.

Braun, V. and Clarke, V. (2013) *Successful Qualitative Research: A Practical Guide for Beginners.*

Braun, V. and Clarke, V. (2018) 'Thematic Analysis', in Liamputtong, P. (ed.) *Handbook of Research Methods in Health and Social Sciences*. Singapore: Springer, pp. 843-860.

Braun, V. and Clarke, V. (2019a) 'Reflecting on reflexive thematic analysis', *Qualitative Research in Sport, Exercise and Health,* 11(4), pp. 589-597.

Braun, V. and Clarke, V. (2019b) 'To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales', *Qualitative Research in Sport, Exercise and Health,* 13(2), pp. 201-216.

Braun, V. and Clarke, V. (2022) *Thematic Analysis: A Practical Guide.* London: SAGE.

Braun, V., Clarke, V. and Rance, N. (2014) 'How to use thematic analysis with interview data ', in Vossler, A. and Moller, N. (eds.) *The Counselling & Psychotherapy Research Handbook*: SAGE, pp. 183-197.

Brown, A. P. (2010) 'Qualitative method and compromise in applied social research', *Qualitative Research,* 10(2), pp. 229-248.

Charmaz, K. (2014) *Constructing Grounded Theory.* 2nd. Ed. edn. Thousand Oaks: SAGE.

Clark, A. M. (2008) 'Critical Realism', in Given, L.M. (ed.) *The SAGE Encyclopedia of Qualitative Research Methods*. Thousand Oaks: SAGE, pp. 167-170.

Creswell, J. W. (2006) *Qualitative Inquiry and Research Design, 2nd Ed.* 2nd edn. Thousand Oaks: SAGE.

Denzin, N. and Lincoln, Y. (2005) 'The Discipline and Practice of Qualitative Research', in Denzin, N. and Lincoln, Y. (eds.) *The Sage Handbook of Qualitative Research*. Thousand Oaks: SAGE, pp. 1-32.

Douven, I. 2017. Abduction. *In:* Zalta, E.N. (ed.) *The Stanford Encyclopedia of Philosophy.* Summer 2017 ed. Stanford, CA: Stanford University.

Dubois, A. and Gadde, L.-E. (2002) 'Systematic combining: an abductive approach to case research', *Journal of Business Research,* 55(7), pp. 553-560.

Edwards, P., O'Mahoney, J. and Vincent, S. (2014a) 'Critical Realism as an Empirical Project', in Edwards, P., O'Mahoney, J. and Vincent, S. (eds.) *Studying Organizations Using Critical Realism*. Oxford: OUP, pp. 1-20.

Edwards, P., O'Mahoney, J. and Vincent, S. (eds.) (2014b) *Studying Organizations Using Critical Realism - A Practical Guide*: Oxford University Press.

Elder-Vass, D. (2010) *The Causal Power of Social Structures: Emergence, Structure and Agency.* Cambridge University Press.

Elder-Vass, D. (2019) 'Realism, values and critique', *Journal of Critical Realism,* 18(3), pp. 314-318.

Elder-Vass, D. and Morgan, J. (2022) ''Materially social' critical realism: an interview with Dave Elder-Vass', *Journal of Critical Realism,* 21(2), pp. 211-246.

Erdsiek, D., Oppel, F. and Bräutigam, Y. 2023. Verbreitung von Homeoffice im New Normal. Mannheim: ZEW – Leibniz-Zentrum für Europäische Wirtschaftsforschung.

Eriksson, D. and Engström, A. (2021) 'Using critical realism and abduction to navigate theory and data in operations and supply chain management research', *Supply Chain Management: An International Journal,* 26(2), pp. 224-239.

Fleetwood, S. (2014) 'Bhaskar and Critical Realism', in Adler, P., DuGay, P., Morgan, G. and Reed, M. (eds.) *Oxford Handbook of Sociology, Social Theory and Organisation Studies: Contemporary Currents,*. Oxford: Oxford University Press, pp. 182–219.

Fletcher, A. (2016) 'Applying critical realism in qualitative research: Methodology meets method', *International Journal of Social Research Methodology,* 19, pp. 1-14.

Flick, U. (2002) 'Qualitative Research - State of the Art', *Social Science Information,* 41(1), pp. 5-24.

Gergen, K. J. (1992) 'The social constructionist movement in modern psychology', *The restoration of dialogue: Readings in the philosophy of clinical psychology.* Washington, DC: American Psychological Association, pp. 556-569.

Gergen, K. J. and Thatchenkery, T. J. (2004) 'Organization Science as Social Construction: Postmodern Potentials', *The Journal of Applied Behavioral Science,* 40(2), pp. 228-249.

Gray, D. E. (2014) *Doing Research in the Real World.* 1st Ed. edn. London: SAGE.

Groff, R. (2000) 'The Truth of the Matter: Roy Bhaskar's Critical Realism and the Concept of Alethic Truth', *Philosophy of the Social Sciences,* 30(3), pp. 407-435.

Guba, E. G. and Lincoln, Y. S. (2005) 'Paradigmative controversies, contradictions and emerging confluences', in Denzin, N. and Lincoln, Y. (eds.) *The Sage Handbook of Qualitative Research.* 3rd ed. Thousand Oaks: SAGE.

Hammersley, M. (1990) *Reading ethnographic research : a critical guide / Martyn Hammersley. Aspects of modern sociology. Social research.* London ; New York: Longman.

Hammersley, M. (2013a) 'Methodological philosophies', *What is Qualitative Research? The 'What is?' Research Methods Series.* 1 ed. London: Bloomsbury Academic, pp. 21-46.

Hammersley, M. (2013b) 'Two methodological disputes', *What is Qualitative Research? The 'What is?' Research Methods Series.* 1 ed. London: Bloomsbury Academic, pp. 67-94.

Healy, M. and Perry, C. (2000) 'Comprehensive criteria to judge validity and reliability of qualitative research within the realism paradigm', *Qualitative Market Research: An International Journal,* 3(3), pp. 118-126.

Hedlund-DeWitt, N. (2013) 'Coding: an overview and guide to qualitative data analysis for integral researchers', *IRC Resource Papers,* No. 1, pp. 2-22.

Henningk, M., Hutter, I. and Bailey, A. (2020) *Qualitative Research Methods.* SAGE Publications Ltd.

Hoddy, E. T. (2019) 'Critical realism in empirical research: employing techniques from grounded theory methodology', *International Journal of Social Research Methodology,* 22(1), pp. 111-124.

Howitt, D. (2010) *Introduction to qualitative methods in psychology / Dennis Howitt.* Harlow, England: Financial Times Prentice Hall.

Kaidesoja, T. (2009) *The Concept of Social Structure in Roy Bhaskar's Critical Realism.* PhD, University of Jyväskylä, Jyväskylä.

Karlsson, J. C. and Ackroyd, S. (2014) 'Critical Realism, ResearchTechniques, and Research Designs', in Paul K Edwards, J.O.M. and Steve, V. (eds.) *Studying Organizations Using Critical Realism : A Practical Guide*. Oxford: Oxford University Press, pp. 21-45.

Kaushik, V., Walsh, C. and Lai, D. (2019) 'Pragmatism as a Research Paradigm and Its Implications for Social Work Research', *Social sciences,* 8, pp. 255.

King, N. and Hugh-Jones, S. (2019) 'The interview in qualitative research', in Sullivan, C. and Forrester, M.A. (eds.) *Doing Qualitative Research in Psychology.* 2nd Edition ed: SAGE, pp. 121-144.

Lincoln, Y. S. and Guba, E. G. (1985) *Naturalistic Inquiry.* Newbury Park, CA: SAGE.

Madill, A., Jordan, A. and Shirley, C. (2000) 'Objectivity and reliability in qualitative analysis: Realist, contextualist and radical constructionist epistemologies', *British Journal of Psychology,* 91(1), pp. 1-20.

Marks, A. and O'Mahoney, J. (2014) 'Researching Identity', in Edwards, P., O'Mahoney, J. and Vincent, S. (eds.) *Studying Organisations using Critical Realism*. Oxford: OUP, pp. 66-85.

Modell, S. (2023) 'To boldly go where no one has gone before: a critical realist approach to space accounting', *Accounting, Auditing & Accountability Journal,* ahead-of-print(ahead-of-print).

Mukumbang, F., Marchal, B., Van Belle, S. and Van Wyk, B. (2020) 'Using the realist interview approach to maintain theoretical awareness in realist studies', *Qualitative Research,* 20, pp. 485-515.

Müller, R. and Klein, G. (2019) 'Qualitative Research Submissions to Project Management Journal', *Project Management Journal,* 50(1), pp. 3-5.

Ng, E. and Stanton, P. (2023) 'Editorial: The great resignation: managing people in a post COVID-19 pandemic world', *Personnel Review,* 52, pp. 401-407.

Noonan, J. (2008) 'Ontology', in Given, L.M. (ed.) *The Sage Encyclopedia of Qualitative Research Methods*. Thousand Oaks: SAGE.

O'Mahoney, J. and Vincent, S. (2014) 'Critical Realism as an Empirical Project - A Beginners Guide', in Edwards, P., O'Mahoney, J. and Vincent, S. (eds.) *Studying Organizations Using Critical Realism*. Oxford: OUP, pp. 1-20.

Outhwaite, W. (1987) *New Philosophies of Social Science: Realism, Hermeneutics and Critical Theory.* New York: Macmillan Education.

Outhwaite, W. (1998) 'Realism and Social Science', in Archer, M.S., Bhaskar, R., Collier, A., Lawson, T. and Norrie, A. (eds.) *Critical Realism - Essential Readings*. London and New York: Routledge, pp. 282-296.

Pawson, R. and Tilley, N. (1997) *Realistic Evaluation.* London: SAGE.

Potter, J. and Hepburn, A. (2005) 'Qualitative interviews in psychology: problems and possibilities', *Qualitative Research in Psychology,* 2(4), pp. 281-307.

Rashid, Y., Rashid, A., Warraich, M. A., Sabir, S. S. and Waseem, A. (2019) 'Case Study Method: A Step-by-Step Guide for Business Researchers', *International Journal of Qualitative Methods,* 18, pp. 1-13.

Ratner, C. (2005) 'Subjectivism', in Given, L.M. (ed.) *The Sage Encyclopedia of Qualitative Research Methods*. Thousand Oaks: SAGE, pp. 839-842.

Ridder, H.-G. (2017) 'The theory contribution of case study research designs', *Business Research,* 10(2), pp. 281-305.

Roberts, J. M. (2014) 'Critical Realism, Dialectics and Qualitative Research Methods', *Journal for the Theory of Social Behaviour,* Vol. 44:1.

Rutzou, T. (2016) 'Putting Critical Realism into Practice: a Guest Blog with Dr. Joe O'Mahoney', *Research & Methods*. Available at: http://criticalrealismnetwork.org (Accessed February 4th, 2021).

Rutzou, T. and Elder-Vass, D. (2019) 'On Assemblages and Things: Fluidity, Stability, Causation Stories, and Formation Stories', *Sociological Theory,* 37(4), pp. 401-424.

Ryan, A., Tähtinen, J., Vanharanta, M. and Mainela, T. (2012) 'Putting critical realism to work in the study of business relationship processes', *Industrial Marketing Management,* 41(2), pp. 300-311.

Saldaña, J. (2016) *The coding manual for qualitative researchers.* Third edn. Los Angeles: SAGE.

Smith, C. and Elger, T. (2014) 'Critical Realism and Interviewing Subjects', in Edwards, P., O'Mahoney, J. and Vincent, S. (eds.) *Studying Organisations Using Critical Realism*. Oxford: OUP, pp. 109-131.

Smith, J. K. (2005) 'Relativism', in Given, L.M. (ed.) *The Sage Encyclopedia of Qualitative Research Methods*. Thousand Oaks: SAGE.

Smith, R. J. (2013) 'Joseph A Maxwell, A Realist Approach for Qualitative Research', *Qualitative Research,* 13(4), pp. 452-453.

Sobh, R. and Perry, C. (2006) 'Research design and data analysis in realism research', *European Journal of Marketing,* 40(11/12), pp. 1194-1209.

Stake, R. E. (2005) 'Qualitative Case Studies', *The Sage handbook of qualitative research, 3rd ed.* Thousand Oaks, CA: Sage Publications Ltd, pp. 443-466.

Sullivan, C., Gibson, S. and Riley, S. C. E. (2012) *Doing Your Qualitative Psychology Project.* SAGE Publications Ltd

Taylor, S. P. (2018) 'Critical Realism vs Social Constructionism & Social Constructivism: Application to a Social Housing Research Study', *International Journal of Sciences: Basic and Applied Research (IJSBAR),* 37(2), pp. 216-222.

Teegavarapu, S., Summers, J. and Mocko, G. (2008) 'Case Study Method for Design Research: A Justification', *Proceedings of the ASME Design Engineering Technical Conference,* 4.

Tilley, N. 'Realistic Evaluation: An Overview'. *Founding Conference of the Danish Evaluation Society*, Copenhagen, 2000: Danish Evaluation Society.

Vaismoradi, M., Jones, J., Turunen, H. and Snelgrove, S. (2016) 'Theme development in qualitative content analysis and thematic analysis', *Journal of Nursing Education and Practice,* 6, pp. 100.

Vincent, S. and O'Mahoney, J. (2016) 'Critical Realism and Qualitative Research: An introductory Overview', in Cassell, C., Cunliffe, A. and Grady, G. (eds.) *The SAGE Handbook of Qualitative Business and Management Research Methods*. London: SAGE.

Williams, L., Rycroft-Malone, J. and Burton, C. (2016) 'Bringing critical realism to nursing practice: Roy Bhaskar's contribution', *Nursing Philosophy,* Early view.

Williams, M. (2016) *Key Concepts in the Philosophy of Social Research* 55 City Road, London: Sage.

Wolgemuth, J. R., Erdil-Moody, Z., Opsal, T., Cross, J. E., Kaanta, T., Dickmann, E. M. and Colomer, S. (2014) 'Participants' experiences of the qualitative interview: considering the importance of research paradigms', *Qualitative Research,* 15(3), pp. 351-372.

Wynn, D. E. and Williams, C. K. (2012) 'Principles for Conducting Critical Realist Case Study Research in Information Systems', *MIS Quarterly,* 36, pp. 787-810.

Yin, R. K. (2018) *Case Study Research and Applications.* 6th edn. Thousand Oaks: Sage.

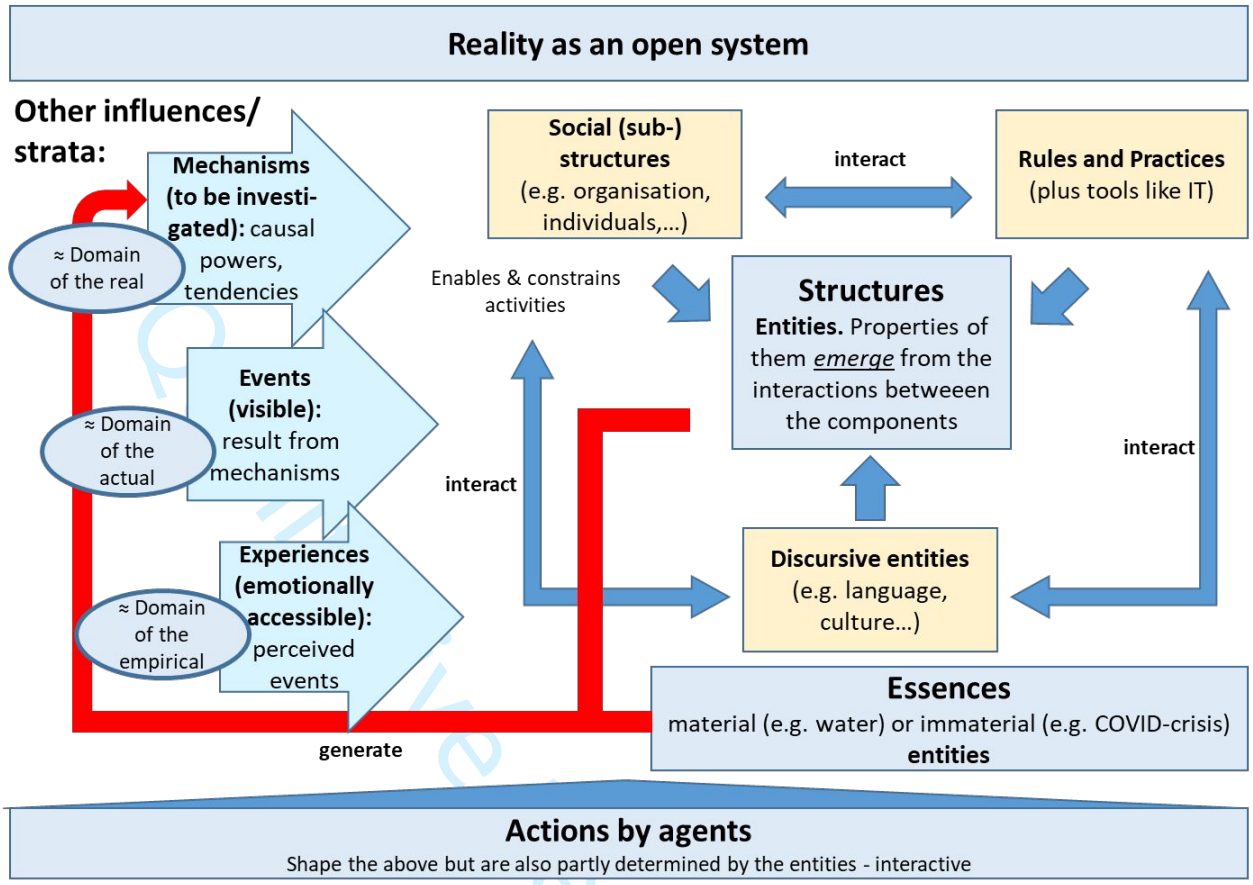

Figure 1 Reality as an open system and the components of structure in critical realism (Source: Authors work)

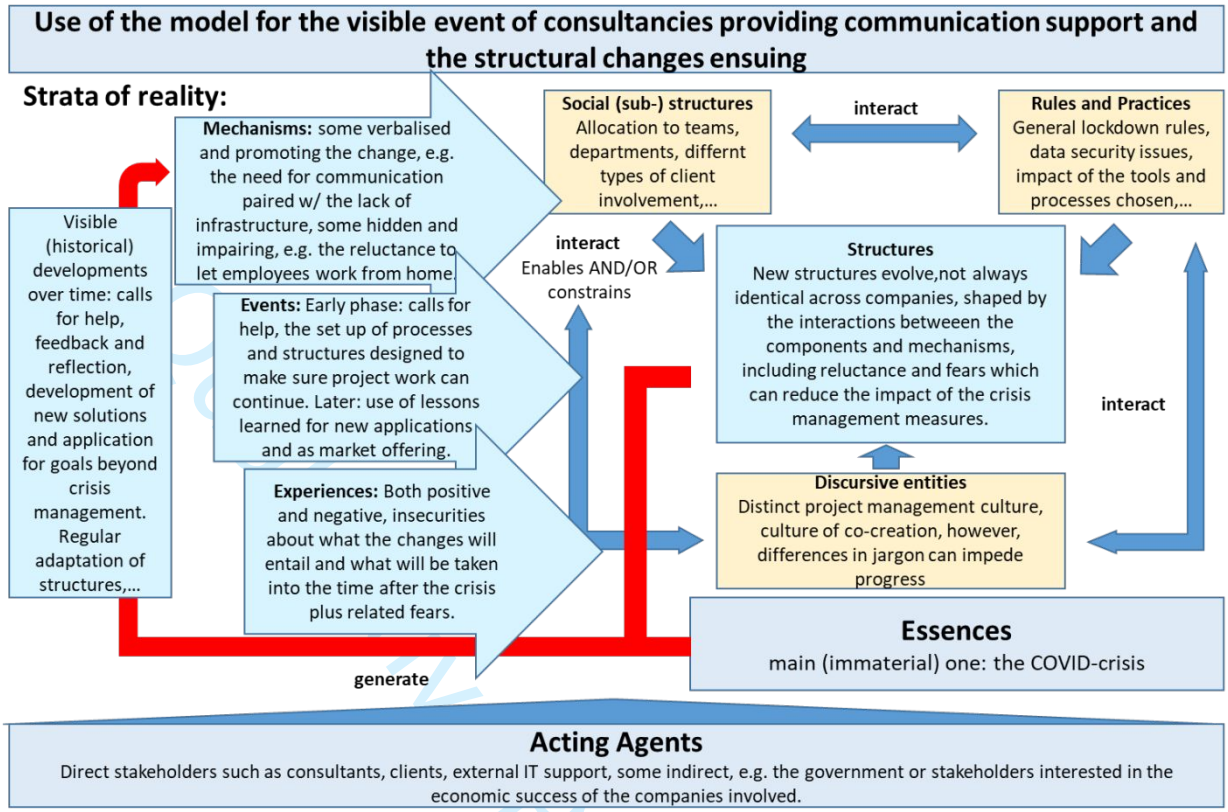

Figure 2 Application example of the model of reality as an open system (Source: Authors work)

Table 1 Research stages of the example study (Source: Authors work)

Stage	Tasks	Specific approach in the present case
Building the basis	Initial literature research, including on philosophical stance, methodology and methods	The focus was laid on examples for the practical application of critical realist research approaches
	Deriving initial context and research object description	
	Identification of first (or expected) "demi-regularities" in the literature	In preparation of first phase one of TA, yielded trends and patterns inspiring theme building
Pre-pilot research design	Detailed initial research design	Included the abductive research logic. TA related decisions taken (see Browne & Clarke, 2006)
	Case selection and data collection method design	Taking into account works on critical realist interviewing
Piloting	Pilot sampling and data collection	4 interviews with people from different consultancies and hierarchy levels
	Pilot conduction, analysis, looking for tentative themes	Already following the research design thoroughly, including two coding phases (initial, axial). Confirmed the usability of the design
Main study research design	Update of research design (if applicable)	Small details adjusted
	Update of data collection method	The interview guideline was revised, some topics emerging in the first interviews added
Main study data collection	Main study sampling	Through personal network
	Main study conduction	Including the pilot, 13 interviews were conducted, 679 minutes yielding close to 7000 lines of transcription. A case study database was built (see Hoddy, 2019).
	Update of context and research object description. First phase of TA. Critical realist approach to explore and explain reality, seeing information emerge	With a focus on data immersion and using the model of reality presented in Figure 1, fitting findings into the categories of structure, events and experiences, trying to identify agents
Analysis (I)	Initial and axial coding (Phase two of TA)	Open coding approach first, then codings against categories ("axes") in order to better understand the data
	Search for and review of themes, phases three and four of TA, first application of abduction and retroduction	Grouping axes into categories and sub-categories, looking for emerging concepts, building the results into themes already trying to identify mechanisms
	Validation, definition and naming of themes, phase five of TA	As a result of a critical review of earlier phases

	Application of abduction/retroduction	Identifying or reviewing causal elements and how they (probably) affected the visible events and structures, explaining relevant interactions between the elements of reality, identifying likely future developments
Validation (Analysis II)	Check for validity	Final review, reflecting alternative results or theories
	Check for corroboration, apply results to finalisation of findings and discussion	The anonymised study was sent to four participants for review, some clarifying questions were asked to others
Write-up	Producing the report, reviews, finalisation of the study	Making clear which result pertains to or represents which of the elements of reality
Enfolding literature research	To be done throughout the work	See recommendations in e.g. Sobh & Perry, 2006

Table 2 Example mapping of literature research results with elements of reality (Source: Authors work)

		Determinants influencing the structure under investigation							
Groups of topics	**Potential influencing factors for the crisis management decisions around the topic**	**Sub-structures**	**Rules and practices**	**Discursive entities**	**Actions by agents**	**Other entities**	**Experien-ces and events**	**Mecha-nisms**	**Relevance for the theoretical framework and the research question**
Preparedness	What was the level of awareness of/access to/experience with relevant technology?	x						x	Aspect of preparedness, the infrastructural setting, mainly relevant for the choice of means (tools, channels)
Preparedness	How well are clients prepared and does this play a role?				x	x	x		Check for the fit of solutions for commu-nication with the external environment
Environment	What role does the regulatory environment play?		x			x			Might be a limitation to what can be done, includes data security, health and safety aspects
Cultural aspects	Are certain industries/companies better prepared than others, and what does this yield? (New aspect: also certain groups within)					x	x	x	Structural aspect of preparedness
Management, leadership, learning and decision making	How do goals of communication on the crisis influence the decisions on communication in the crisis?	x			x			x	Relevant for topics and content and for the governance of it by the (crisis) management
Management, leadership, learning and decision making	How were the decisions taken and what role did stakeholder feedback play?	x	x		x	x	x	x	Relevant for solution design, adaptation and the learning process
Evaluation	What type of channels and tools were used and how well did they work? (New aspect: why were these measures successful?)	x			x		x	x	Key aspects of improved practice, also for limitations of the solutions, also checks for increases in e.g. social media use. This includes hybrid work solutions as well
Future, "new normal"	What was learned for the future, and how?	x	x				x	x	Central question for the study, relevant regarding learning in and after the crisis, improved practices and resilience building